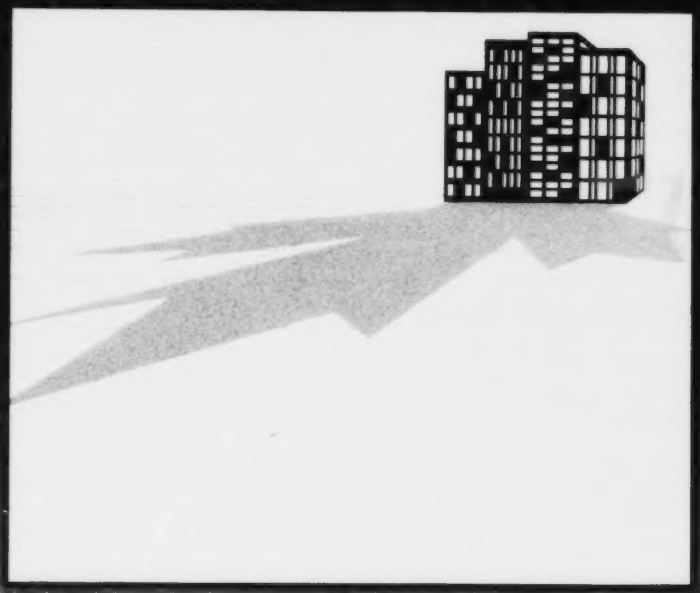
Petro-Canada
Its Role, Control and Operations



Paul Halpern
André Plourde
Leonard Waverman

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PAUL HALPERN
ANDRÉ PLOURDE
LEONARD WAVERMAN

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Foreword

This study was undertaken as a part of the Council's recent project on government enterprise. The Council report on this subject, *Minding the Public's Business*, came out at the end of 1986. The analysis of Petro-Canada was revised to take account of newer events and this is just being released now. The overall aim of this project has been to improve our understanding about federally and provincially-owned and -controlled entities which operate at arm's length from government and have important commercial functions. The project attempted in particular to answer two questions: What is the appropriate role of government enterprise as one of a number of instruments of public policy? And, second, how should the apparatus of control within government be structured so as to realize the full potential of this instrument?

The research initiated for the project included both the examination of general questions pertaining to government ownership and the investigation of specific public corporations. The present study falls into the latter category. It examines one of the largest and most important federal public corporations, describing the factors that led to its creation, exploring its role and performance, and investigating the specific problems of control it presents. Petro-Canada was primarily a response to the concerns in the mid-1970s over the security of Canada's energy supplies. Over the years, however, it has grown into a major commercial entity far different from that which was originally envisioned. The study traces this evolution and investigates the current challenge faced by the government and by Parliament in attempting to develop an adequate system of monitoring and control for this large multifaceted public corporation.

The authors of this study, Paul Halpern, André Plourde and Len Waverman, have all written extensively on energy and industrial organization issues. Professor Waverman is a member of the Economics Department and Professor Halpern is with the Faculty of Management at the University of Toronto. Professor Plourde is with the Department of Economics at the University of Ottawa.

Judith Maxwell
Chairman

Petro-Canada:
Its Role, Control and Operations

1 Introduction

In March 1986, Petro-Canada released its *Annual Report* for 1985, marking a decade of active involvement in the Canadian oil and gas industry. The corporation's enabling legislation received Royal Assent on 30 July 1975, and Petro-Canada began operations five months later. The modest beginnings of this federal Crown corporation were followed by a string of major acquisitions: Atlantic Richfield Canada in 1976, Pacific Petroleums in 1978-79, Petrofina Canada in 1981-82, the downstream assets of BP Canada in 1982-83 and, in 1985, the downstream assets of Gulf Canada located west of the province of Quebec. By the end of 1986, Petro-Canada was the largest Canadian-owned and -controlled oil company, and one of the main players in the domestic oil and gas industry. It is also the largest federal Crown corporation, in terms of both assets ($8.8 billion as of 31 December 1985) and revenue generation ($5.3 billion in 1985).[1]

This study examines the emergence and development of Petro-Canada, its objectives and activities as well as how these have changed over time. The firm began as an active instrument of federal energy policy in the days when Alberta and Ottawa were in disagreement over energy pricing and rent distribution. In the mid-1970s, Ottawa was concerned that private-sector firms were not developing frontier resources fast enough – and Petro-Canada was born. From these original "social" concerns, the firm began to develop interest in its "bottom line." This new-found interest served both Petro-Canada's managers and politicians. In particular, expansion into downstream activities increased Petro-Canada's visibility to the public, and reduced its dependence on the federal purse in times of mounting budget deficits. Today, the firm has a commercial thrust, and talk of privatization is in the air; a remarkable change in ten years.

We begin (Chapter 2) by analyzing the history of the corporation to determine how and why changes in direction occurred. Then, to determine how Petro-Canada was perceived by other participants in the Canadian oil and gas industry, we examine the effects that the creation of this Crown corporation and subsequent key events in its development have had on the share prices of firms in this industry (Chapter 3). Next, we examine the financial performance of Petro-Canada as compared to the performance of other integrated oil companies (Chapter 4). In this financial analysis, some ad hoc adjustments are made to the raw data to try and capture the impact of Petro-Canada's status as an agent of the Crown on its financial performance. We then examine the relationship between Petro-Canada and its two parents, the federal government and voters/taxpayers, focusing on the nature and effectiveness of control mechanisms designed to evaluate Petro-Canada's role and the performance of its managers (Chapter 5). Finally, we offer a number of policy strategies concerning the future development of Petro-Canada, its role in Canadian energy policy, and the nature of its relationship with the federal government (Chapter 6).

Chapter 2 traces the roots of Petro-Canada to actions taken by the federal government in the early 1970s. Through this we show that a majority Liberal federal government had sought to establish a state presence in the Canadian oil and gas industry as early as 1971. However, it would take more than four years (two elections and a period of minority rule) for a majority Liberal government to enact legislation creating a Canadian national petroleum corporation.

At the time of its inception, the Crown firm was given a mandate which included a number of social objectives. The key elements of this mandate were to increase Canadian supplies of oil and gas, principally through the exploration and development of the country's geological and technological frontiers; to be a vehicle that would allow the federal government to increase its knowledge of the oil and gas sector (the "window-on-the-industry" function), and through this assist the federal government in designing policies aimed at that sector; and to increase Canadian participation in the domestic oil and gas industry. We trace the evolution of this mandate over the firm's first decade of existence, and conclude that prior to the last few months of 1984, the "official" definition of the mandate (i.e., that to be found in the *Petro-Canada Act*, interpreted in the light of pronouncements made by senior members of Cabinet) and its practical interpretation differed somewhat. We also argue that some of the pre-1984 departures from the original perceptions of Petro-Canada's scope of activities could well have originated with the firm itself. In light of this, we question two aspects of the firm's original role – to be a "window on the industry" and to assist in policy development. These roles place the Crown firm in a potential

conflict-of-interest situation, examples are some aspects of the federal government's 1980 National Energy Program.

We conclude that Petro-Canada has aggressively sought to increase domestic supplies of oil and gas from frontier sources. The Crown firm's extensive offshore exploration program, its activities in the Arctic regions (both on its own and as a partner in the Panarctic consortium), and its participation in Syncrude and heavy oil projects are cases in point.

Following the September 1984 federal election and the accession to power of a majority Progressive-Conservative government, Petro-Canada was given a new mandate by its sole shareholder. It would now be required to operate in a fundamentally commercial fashion, subject to national interest overrides in the form of written directives from the federal government. We argue that this reorientation of the corporation's overall direction will result in a sharp reduction in its general public-policy role. In retrospect, it appears to us that the roots of the "new" mandate can be traced back to earlier steps undertaken by Petro-Canada to increase the importance of "bottom-line" considerations in determining its range of activities.

We also argue that the new arrangements will work to clarify the ultimate source of responsibility for individual activities undertaken by the Crown firm. However, the government's intervention in the process which led to Petro-Canada's acquisition of some of Gulf Canada's downstream assets suggests that some aspects of the nature of the relationship between the corporation and its parent government remain ambiguous.

In Chapter 3 we undertake an examination of the impact on the stock prices of securities in the oil and gas industry of the following events: the announcement of the government's intention to establish a national petroleum corporation, its manifestation as Petro-Canada, and Petro-Canada's growth through acquisitions. There are a number of hypotheses available to predict the impact of these events on investors' expectations of future cash flows in the oil and gas industry, and thus on security prices. Unfortunately, these influences need not be in the same direction; cogent arguments can be made to rationalize both reductions and increases in stock prices of private-sector firms resulting from the creation and subsequent expansion of Petro-Canada.

The empirical evidence provided by these exercises ("event analysis") suggests that financial markets viewed negatively the establishment of a Canadian national petroleum corporation. The evidence presented in this chapter also suggests that subsequent events in Petro-Canada's history (e.g., its early acquisitions, its takeover attempts – both successful and unsuccessful – of integrated firms) had little or no net impact on the financial market's evaluation of the expected cash flows of integrated and non-integrated oil companies. Subject to *caveats* noted in the chapter, this observation suggests that private-sector investors have not been "surprised" (at least not in a statistically significant way!) by the evolution of the Crown firm since its establishment.

Chapter 4 examines the financial performance of Petro-Canada and compares it with that of other integrated oil firms operating in Canada. This proves to be an arduous and frustrating task whose conclusions cannot be regarded as definitive. Four main factors are responsible for this shortcoming. First, as a corporation wholly owned by the government of Canada, Petro-Canada has no privately-held common equity. This implies that there is no ready mechanism through which financial markets can reflect the consequences of major actions undertaken by Petro-Canada on the market value of its equity. Thus, a reasonably effective way of measuring performance is unavailable. Second, until the end of 1984, the Crown corporation's mandate was such that its prescribed scope of activities included elements which would not have been undertaken by profit-maximizing, private-sector firms (at least, not undertaken on the scope, or within the time frame chosen by Petro-Canada). As a result, the Crown firm currently holds a much riskier portfolio of activities than do most other firms in the oil and gas industry. Third, Petro-Canada has grown rapidly, and primarily through acquisitions; this growth occurred in a period marked by high inflation rates and volatile world oil prices. The other firms in the integrated oil industry grew more slowly, and not primarily through acquisitions. Finally, certain accounting practices and financial benefits available to Petro-Canada (e.g., accounting for issues of preferred shares by a subsidiary and the availability of funds from the Canadian Ownership Account), while legitimate, make it difficult to compare Petro-Canada's financial performance with that of other integrated oil firms.

All of the factors outlined in the previous paragraph should convince the reader that an evaluation of the Crown corporation's performance using the tools normally applied to private-sector firms may yield a misleading or, at least, an incomplete picture. With these *caveats* in mind, the results obtained in Chapter 4 suggest that, on average, over the 1976-84 period, Petro-Canada turned in a profit-based performance which was inferior to that of a group of four integrated oil firms (i.e., Gulf, Imperial Oil, Shell and Texaco). However, when cash-flow and liquidity analyses are utilized, Petro-Canada's performance is quite close to

that of these four integrated firms. We have also experimented with a series of ad hoc adjustments to Petro-Canada's financial statements that would make them conform more closely to industry standards.[2] In all but one case examined, these adjustments implied a reduction in the Crown firm's retained earnings.

Chapter 5 casts the monitoring, evaluation and control of Petro-Canada's activities, and those of Crown corporations in general, as a double "principal/agent" problem. The ultimate principal (the Canadian voter/taxpayer) delegates some authority to an agent (the federal government) who then establishes a Crown corporation (here, Petro-Canada) to act as its agent. The principal/agent problem is to devise a set of institutional arrangements whereby first, the agent (Petro-Canada or, more specifically, its management) cannot attempt to alter or misuse the principal's objectives for its own interests; and second, the agent acts efficiently in carrying out the principal's objectives. We therefore examine the mechanisms through which the federal government (and ultimately voters) presently exercise control over the behaviour of the Crown corporation. The three key mechanisms currently in use with Petro-Canada are the capital budgeting process, Cabinet directives, and the composition of the corporation's board of directors.

Based on arguments relating to the principal/agent problem and on the evidence accumulated in earlier chapters, we recommend an enhanced set of procedures which would lead to a more effective control of Petro-Canada's activities by the federal government as well as to a more open process through which information is made publicly available. In this vein, we support most of the ideas advanced in the 1984 revisions to the *Financial Administration Act*. These revisions increased the number and scope of reporting functions, as well as clarifying and expanding the duties of the boards of directors of Crown corporations in general. We note that the limitations inherent in the capital budgeting process as an instrument of control are not primarily related to the legislative provisions per se, but rather to the lack of resources (including time) which federal officials have at their disposal when dealing with proposals originating with Crown firms, especially one of this size and scope. We feel that this situation should be remedied both by expanding resources at the departmental review level and by formalizing an annual Parliamentary review through the Standing Committee on Energy, Mines and Resources. We see a much stronger role to be played by standing committees of the House in overseeing the affairs of Crown corporations in general, and those with commercial activities (such as Petro-Canada) in particular.

We also favour more frequent use of Cabinet directives instructing the Crown firm to undertake specific activities since this allows a clearer identification of the source of responsibility.

One important departure from recent past monitoring practices, which we support, has to do with the composition of Petro-Canada's board of directors. Until July 1986, key civil servants had been on the board of Petro-Canada. Since the potential exists for federal civil servants to be placed in conflict-of-interest situations as a result of their presence on Petro-Canada's board, we recommend that this practice not be reinstated in the future.

We also suggest an end to Petro-Canada's policy-setting and "window-on-the-industry" roles. In these functions, conflicts of interest strike us as so apparent that we would do away with them lest the firm end up writing energy policy with its objectives in mind, and not those of the ultimate shareholder.

We also examined ways in which the performance of Petro-Canada could be assessed. Based on the evidence presented in Chapter 4, we de-emphasize the use of financial ratios as means of assessing the performance of the Crown firm (contrary to new provisions in the *Financial Administration Act*). Rather, we would substitute a careful and detailed expenditure analysis since we feel that this is potentially not as sensitive to the status of Petro-Canada or to the consequences of the "social objectives" aspects of its mandate, and would thus provide a more accurate depiction of the efficiency with which the Crown firm operates. In cases where even expenditure analysis would not prove sufficient (or appropriate), we would recommend outside expert auditing of certain operations.

Our study is of a Crown corporation in transition, one formed in the heat of an energy crisis, and one which may find its days as a Crown corporation numbered. This is not a study praising or condemning Petro-Canada. It is a study in political economy – how do economic imperatives interfere with political desires (and vice versa). Most of the study deals with Petro-Canada's original objectives, as first defined back in December 1973. We express concern that these objectives were vague, conflicting and potentially open to manipulation by a self-serving management. We examine the firm's performance and how it affected the share prices of its competitors. We suggest means by which these various roles could be controlled and monitored, and ways in which efficiency could be evaluated.

Much of our discussion – the double principal/agent problem, the role of ex ante budgeting and ex post evaluations – exist because of the original *social* objectives of the firm. Private-sector firms are not angels, nor do they avoid

the principal/agent problem. What private-sector firms have, which Crown corporations do not have, is a constant, 24 hours a day, 365 days a year monitoring system – capital markets. Most of our recommendations are control mechanisms designed for the principal who cannot observe a continual market evaluation of its agent. These control mechanisms, while costly and cumbersome, are necessary for the effective control of *any* Crown corporation. Bearing these costs, and the distortions and potential inefficiencies of Crown corporations will be of value to society only if the social benefits of the public firm exceed the costs incurred.

Late in 1984, the federal government announced that the mandate of Petro-Canada would now be to operate in a fundamentally commercial manner, subject to the right of the government to issue directives to the firm to undertake projects deemed to be in the national interest. To this date, no such directives have been issued since the commercial mandate was imposed. At first look, there would thus appear to be very few reasons to maintain Petro-Canada as a Crown corporation. We would encourage the federal government to undertake a careful analysis of the *long-term* potential of the Canadian hydrocarbon sector, and of the role of a national petroleum corporation within this sector. Given the inherent difficulties in controlling the activities and evaluating the performance of a Crown firm like Petro-Canada, if such a study were to conclude that there was little scope for a social role to be attributed to a national petroleum corporation, then we would recommend the privatization of *all* Petro-Canada's equity.

2 The Formation of Petro-Canada: Objectives and Changes in Objectives

Introduction

The creation and subsequent expansion of Petro-Canada have drastically altered the role played by the federal state in the Canadian oil and gas industry. Prior to Ottawa's announcement of its intention to establish a national petroleum corporation (hereafter, NPC), the federal government's direct holdings in the industry were limited to an ownership position of about 45 per cent of Panarctic Oils Limited (hereafter, Panarctic). This government-industry consortium was established in the late 1960s primarily to undertake exploration programs in the Canadian Arctic region.

Although companies fully or partly owned and controlled by foreign governments were active in Canada at the time,[1] the above fully describes the Canadian government's ownership position in the oil and gas industry as of early 1973. By the end of that year, the minority Liberal government had announced its intention to create an NPC, entrust it with an important energy policy role and equip it with the powers that were felt necessary to fulfill its mandate. After a 22-month hiatus, the Liberal government, recently returned to power with a majority of the House of Commons seats, introduced the bill that would become the *Petro-Canada Act*.

A decade later, Petro-Canada is one of the largest oil and gas companies operating in Canada. According to statistics published in *Oilweek*,[2] in 1986 this federal Crown corporation was the fourth largest producer of natural gas in the country and ranked third in terms of crude oil and gas liquids production. It held the most net proven Canadian natural gas reserves of any company operating in Canada, and ranked second in terms of its domestic crude oil and gas liquids reserves. Petro-Canada was also the largest oil and gas landholder in the country. Furthermore, during the decade following its creation, Petro-Canada has been the most active explorer in the Eastern Canadian offshore region. It is the only Canadian-owned and -controlled oil company to have a network of retail product outlets which spans all 10 provinces and both territories. Its assets and those of its subsidiaries include landholdings in Western Canada as well as crude oil refineries, natural gas pipelines as well as a part of the Syncrude oilsands plant, one of the tallest buildings to grace the skyline of Calgary as well as part of a domestic fuel oil distributor in St. John's. Petro-Canada is a fully integrated oil and gas company which, at last count, employed about 10,500 people[3] and whose activities stretched from coast-to-coast.

Yet, on 1 January 1976, Petro-Canada started operations with a staff of four, no land base and rented quarters in a downtown Calgary hotel.[4] How was this phenomenal growth achieved? What were the objectives pursued by the federal government when it set up a Crown corporation in the oil and gas industry? This chapter seeks to shed some light on these questions and related issues.

In doing so, we will distinguish four periods in the life of Petro-Canada. The first stage, from 1970 to 1973, is the embryonic period. There are never any formal suggestions that the federal government intends to form a Crown corporation to operate in the oil and gas industry, but the groundwork is clearly laid for future developments in that direction. This period also sees an unsuccessful bid by Ottawa to acquire control of a major Canadian oil producer.

The second period lasts from 1973 to 1978 and witnesses the Parliamentary actions which resulted in the creation of Petro-Canada. It also documents the first two years of the Crown corporation's existence during which it assumed the responsibility of carrying the federal government's investment in Panarctic and Syncrude as well as continuing the latter's involvement in the Polar Gas Project. During this period, Petro-Canada also completed its first acquisition of a private-sector firm. Although these are all events worthy of examination, we will pay more attention to the reasons offered by the government to justify this form of intervention into the oil and gas industry. We will also examine the mandate given the firm, its interpretation of these directives and, more generally, the relationship between Petro-Canada and its parent government.

It is argued that a noticeable change in policy direction occurred in 1978 and that this marks the beginning of the third period in Petro-Canada's history, a period which extends to the last months of 1984. In 1978, the Crown corporation made its first (though ultimately unsuccessful) attempt to enter into the downstream activities of the oil and gas industry. A number of successful attempts have since followed. We will examine the corporation's rationale for

these moves as well as the position taken by the federal government of the day. The events which took place during the period of uncertainty that accompanied the short-lived minority Progressive-Conservative government of 1979-80 will also be examined, as will their consequences. The role played by some executives of Petro-Canada in the drafting of the federal government's National Energy Program of October 1980 will serve to highlight the ambiguities that can arise when an instrument of government policy, acting in part as a purveyor of information to the government, is also an active participant in a given industry.

Soon after its election in September 1984, the majority Progressive-Conservative federal government gave Petro-Canada a new mandate: that of operating in a fundamentally commercial fashion. Although the federal government reserved the right to direct Petro-Canada to undertake certain activities deemed to be in the national interest, it was argued that the Crown corporation should cease to be perceived "as an instrument in the pursuit of the [federal] [g]overnment's policy objectives."[5] In the history of Petro-Canada, this marks the beginning of the fourth period, which extends to the time of writing. We will examine the behaviour of both Petro-Canada and the federal government subsequent to the formal change in the Crown corporation's mandate, to identify possible responses to this policy change.

In the concluding section of this chapter, we try to provide a backdrop against which to examine the salient features of Petro-Canada's short but eventful history. We also try to link federal energy policy in general with Petro-Canada in particular. From this, we draw a few conclusions concerning the role of Petro-Canada, its effect on the conduct of Canadian energy policy and hence, focus our attention on the nature of the relationship between Petro-Canada and its parent government.

The First Stage: 1970 to 1973

Early Developments: Denison Mines and Home Oil

The year is 1970. The Watkins Report on the extent of foreign ownership in Canadian industry[6] was published about two years earlier. Based on its findings, many groups have publicly expressed their concern over the consequences of foreign ownership and control on the Canadian economy. Nationalism is in the air and the concerns of politicians reflect this fact.

In the middle of all this, Roman Corporation Limited of Toronto decides to sell its 25.5 per cent interest in Denison Mines to Hudson's Bay Oil and Gas Limited, a company headquartered in Calgary but approximately 85 per cent owned by Continental Oil Company of New York.[7] This is treated as an important development because of Denison's involvement in the Canadian uranium industry. In the House of Commons, this sparks a debate with heavy nationalistic overtones and the government is pressed to intervene to prevent the proposed transaction from taking place.

A recent decision by the Supreme Court of Canada had expressed the opinion that the uranium industry fell under federal jurisdiction since its importance transcended provincial boundaries. The majority Liberal government thus felt it had the legislative authority to intervene in this matter and announced in March 1970 that it would not allow the sale of Denison Mines stock to a U.S.-controlled firm.[8] The move was successful in the sense that ownership and control of Denison Mines remained in Canadian hands but a precedent had been established: the federal government had intervened in a market transaction to prevent the sale of part of a Canadian company to U.S. interests.

The focus now shifts to the petroleum industry and Home Oil Company Limited (hereafter, Home) of Calgary. During the 1950s and 1960s, Home was one of the most dynamic companies in the Canadian oil patch. Its fortunes had their ups and downs but by the end of the 1960s, Home was the largest Canadian-owned and -controlled oil producer operating in the country. Its main activities were related to oil exploration and development, and did not extend to downstream activities such as refining and marketing.

At the end of the 1960s, the Alaska North Slope fever hit the North American oil patch and Home was no exception. The company made two moves which later proved disastrous. In 1970, Home reportedly bought heavily into Atlantic Richfield Oil Company (hereafter, ARCO), a U.S. firm actively exploring in Alaska.[9] Then, Home itself got involved in a two-well exploration program on Alaska's North Slope.[10] By industry standards, Prudhoe Bay was a huge oil discovery but every oil field must end somewhere, and Home was left on the outside looking in. By the middle of 1970, Home's losses from its purchase of ARCO stock were heavy and the company's liquidity position had also deteriorated considerably because of its expenditures on the North Slope of Alaska.[11] Home was in financial difficulties and so was its largest shareholder and Chief Executive Officer, R. A. Brown Jr.

Brown exercised control of Home through his majority interest in Cygnus Corporation Limited (hereafter,

Cygnus), a holding company whose principal asset consisted of a controlling interest in Home.[12] As his financial situation deteriorated, Brown decided to sell his interest in Cygnus. After negotiations with a number of Canadian firms had failed, Brown found a buyer south of the border. Cygnus and the prospective U.S.-based buyer, Ashland Oil Company Limited (hereafter, Ashland), came to some formal agreement as to the terms of the proposed sale on 18 January 1971.[13] The concern that had been expressed in the House of Commons over the prospective sale of Home now reached new heights. The majority Liberal government was reminded of its actions in the Denison Mines case, and was urged to intervene and prevent the sale of Home to a U.S.-owned and -controlled company.

At this juncture, there are conflicting accounts of the government's intentions in this case,[14] but nonetheless two facts emerge. First, the precedent set in the Denison Mines case provided a point of reference for those who wished the federal state to intervene directly. Second, the federal government had made it amply clear to both Brown and the executives of Ashland that it considered the maintenance of a majority Canadian ownership and control of Home to be desirable. At the end of a long House of Commons debate on the future of Home, J. J. Greene, then Minister of Energy, Mines and Resources, rose and for the first time expressed the government's willingness to intervene in this case:

> . . . the position of the government [is] that this company should remain a Canadian company and that such action as is necessary should be taken in order to ensure the maintenance of this company as a Canadian company.[15]

On this occasion the Minister also informed the House that, on his instructions, the Deputy Minister of Energy, Mines and Resources had discussed the issue of the control of Home with Brown as early as 21 June 1970.[16] The government had been apprised of Brown's intentions from the very start and had watched as a number of Canadian firms had first expressed interest, but always subsequently failed to reach agreement with Brown. That the latter is reported to have insisted that any sales agreement include certain clauses which rested uncomfortably with prospective Canadian buyers[17] probably increased the pressure on the federal government to act. In any case, the government announced its intention to keep the ownership and control of Home in Canadian hands, and this was greeted with the general approval of all political parties represented in the House of Commons.

Just what this announcement by the federal government meant was unclear since it did not have at its disposal any existing instrument to implement this proposed course of action. The jurisdictional authority of the federal state did not extend as far in the petroleum industry as it did in the uranium industry and the Foreign Investment Review Agency had not yet been created. How then did the federal government intend to maintain the ownership and control of Home in Canadian hands when it had no instrument on which to rely and moral suasion had so far failed to produce a Canadian suitor?

That question would be answered less than one month later when J. J. Greene made the following announcement in the House of Commons:

> Mr. Speaker, I would like to advise the House that following previous exploratory conversations, government officials and R. A. Brown, Jr. commenced negotiations after the close of the stock market today for the purpose of considering the possibility of acquiring Mr. Brown's controlling position in Cygnus Corporation Limited.[18]

This time, the federal government proposed to take a different approach to maintaining ownership and control in Canadian hands: it would acquire the firm itself.

Two facts emerge from the questions asked and comments made in the House of Commons over the ten days or so which followed this announcement. First, the Progressive-Conservative Party, though supportive of the objective of keeping ownership and control of Home in Canadian hands, opposed *on principle* this form of government intervention in the oil and gas industry. The New Democratic Party, on the other hand, supported both the objective and the proposed method of achieving it.

Second, this proposed direct involvement of the federal state in the oil and gas industry appears to have been motivated solely by the desire to prevent the acquisition of a Canadian firm by foreign, in this case U.S., interests:

> The objective of the government throughout has been to retain Canadian majority ownership and full Canadian control of Home Oil.[19]

Given the limited extent of federal jurisdiction in the oil and gas industry, and the apparent lack of a Canadian suitor, the federal government had seemingly decided that this objective could only be met through its acquisition of Cygnus.

The debate spawned by the government's proposed course of action centred exclusively around the issues of foreign ownership and control, and the need for a state presence in the Canadian oil and gas industry was seen as resting solely on such considerations. No effort was made to identify other public-policy goals that would be served by

the government's acquisition of Cygnus and hence, Home. Similarly, economic factors other than ownership and control never entered into consideration.

In the end, it was all for naught. Brown decided not to sell to the government and in March 1971, J. J. Greene announced in the House of Commons that negotiations to acquire Cygnus had not reached a stage of firm understanding. Brown would pursue discussions with a private Canadian company which had recently expressed interest in purchasing his controlling interest in Cygnus.[20] Some time later, the Minister of Energy, Mines and Resources rose in the House of Commons to announce that Consumers' Gas Company of Toronto had agreed to purchase Brown's controlling interest in Cygnus.[21] The control and a majority of the ownership of Home would remain in Canadian hands.

The objective set out by the federal government had therefore been met without any need for the state to acquire an ownership position. Nonetheless, a precedent of a sort had been set: without first seeking to establish a clear economic rationale for doing so, a majority Liberal federal government had expressed its willingness to establish a state ownership presence in the Canadian oil and gas industry.

A National Petroleum Corporation for Canada?: Studies and Pronouncements

Soon after the discussions concerning Home's future had disappeared from the House of Commons and the front pages of newspapers, officials of the federal Department of Energy, Mines and Resources (hereafter, EMR) undertook a study of Canada's energy situation and its prospects for the future. The following year, a long-awaited report (Canada 1972) on the extent and consequences of foreign direct investment in Canada was released by the federal government. The Gray Report, as this document came to be known, fuelled nationalistic feelings in Canada again; the motives and operations of the petroleum industry, with its high visibility and high level of foreign ownership and control, came under increased public scrutiny.

At about the same time, the officials in charge of EMR's study on the country's energy situation decided to examine the feasibility of establishing an NPC in Canada. They reportedly wanted a Canadian with experience in the operation of NPCs to perform the study. Eventually, Wilbert Hopper, a Canadian employed by the Boston-area consulting firm of Arthur D. Little Incorporated, was hired. At the time, Hopper, who would later become Chief Executive Officer of Petro-Canada, was reportedly not overly optimistic about the possible role and control of an NPC in Canada.

In his study,[22] Hopper is reported to have suggested that three main sets of issues must be addressed when setting up an NPC: objectives, performance and control. What exactly does the government wish an NPC to do? Since he saw no purpose to be served by a corporation that would simply act like any other participant in the marketplace, Hopper, based on studies of NPCs in other countries, envisaged the creation of an instrument designed to serve a broader public-policy role. He warned, however, that the historical evidence suggested that such corporations, once removed from the competitive atmosphere of the marketplace, tended to turn in poor performances and sometimes became drains on the treasury of their parent governments.

To complicate things further, the behaviour of NPCs is subject to conflicting types of pressure. As with all state-owned corporations, there is a tendency for NPCs to elude the control of their parent governments, and thus for operating policy to be company-directed.[23] However, there is also a tendency for governments to use NPCs to pursue, what Pratt (1981) calls "vaguely defined political goals," which could well contribute to the poor financial performance of these companies. Based on his examination of the performance of other NPCs, Hopper argued that such companies tended to resolve this conflict by what amounts to an all-or-nothing choice: they either operated like any other oil company, or submitted completely to their political masters. Basically, he seems to have doubted whether an NPC could successfully pursue public-policy objectives and commercial interests simultaneously.[24]

Meanwhile, federal elections had been held in 1972. The Liberal government was returned to power but in a minority position and needed the support of the New Democratic Party to remain in office. In June of 1973, Donald Macdonald, then Minister of Energy, Mines and Resources, made public the documents which resulted from the recently concluded study of Canada's energy situation undertaken by officials of his department in 1971.

This two-volume report,[25] entitled *An Energy Policy for Canada – Phase 1* (hereafter, the 1973 EMR report), reflected the ambiguities expressed in Hopper's study of the pros and cons of establishing a Canadian NPC. However, it left no doubt that in the opinion of its authors, an NPC could be a powerful instrument which would allow Canada to counterbalance foreign influences in its own oil and gas industry.

Appendix A contains an excerpt from Chapter 7 in Volume I of the 1973 EMR report entitled "State participation in the Canadian energy industry."[26] Ten sources of "benefits" and eight sources of "costs" are listed for a theoretical Canadian NPC. When one groups the 10 potential sources of benefits associated with the creation of a fully integrated NPC into overlapping sets, it becomes obvious that in eight of the 10 sources mentioned (numbers 1, 2, 3, 4, 6, 7, 8 and 10), the primary concern is with issues related to the foreign ownership and control of the petroleum industry in Canada. In an economic sense, these arguments are distributive in character, seeking to redistribute the activities (as well as the control over these activities) and benefits generated by the oil and gas industry from foreign shareholders to Canadian citizens (or, in some cases, residents).

Two sources of benefits (numbers 3 and 9) stress the redistribution of activities and benefits within the Canadian federation while another (number 5) is primarily concerned with redistribution from foreign countries to Canada, independently of issues relating to the foreign ownership and control of the Canadian oil and gas industry.

In five instances (numbers 1, 2, 3, 9 and 10), it is argued that important sources of benefits could be tapped if the government were to use an NPC to pursue other public-policy goals which are not primarily economic in character. Finally, only two of these arguments (numbers 3 and 4) can be thought of as relating to benefits that would flow due to the increased economic efficiency which could result from the creation of an NPC.

It should also be noted that two sources of benefits (numbers 2 and 3) emphasized the notion that additional information concerning the oil and gas industry and its activities would be made available to the public sector as a result of the operations of an NPC. These are thus the progenitors of Petro-Canada's "window-on-the-industry" function, about which we shall have more to say later.

Eight factors which were felt to weigh against the creation of an NPC were also presented in the report. Four of these factors (numbers 1, 2, 3 and 4) are primarily concerned with the large expenditures necessary to set up and operate an NPC. Of particular concern are the acquisition of a market position, managerial expertise and a land base. Another factor (number 5) questions the ability of an NPC to increase economic efficiency while three others (numbers 2, 6 and 8) stress the financial risks associated with such a venture.

The issues of performance and control which Hopper had stressed in his study also appeared as factors weighing against setting up an NPC. The argument presented in the sixth factor suggests that the definition of the corporation's mandate and objectives may, of itself, negatively affect its performance. Finally, factor 7 is clearly directed at the difficulty of government control over the activities of the NPC.

Overall, the 1973 EMR report is ambivalent about the creation of an NPC. It suggests that there are some clear sources of "benefits" to such a move, but that it would also incur some substantial "costs." However, there are three sets of issues which were effectively not discussed by the report, and hence reduce its value as an economic study.

First, although the report suggests that means other than the creation of an NPC could be used to attain the desired objectives, these alternatives were not systematically analysed.

Second, when examining the pros and cons of establishing an NPC, the only option presented is that of a fully integrated company. No effort is made to examine the different sectors of the oil and gas industry, and then outline the potential role of an NPC within each of them. But this can be largely attributed to the third shortcoming of the report: it does not seek to make a case for (or against) the creation of an NPC which is primarily versed in terms of its consequences for economic efficiency. Therefore, the choice of the degree of integration of the proposed NPC could equally be based primarily on non-economic arguments.

As we have suggested in the last few pages, the main objectives of an NPC, as envisaged by the 1973 EMR report, are redistributive in character, in terms of both net income as well as the management and control of the oil and gas industry in Canada. Since such objectives of redistribution can be met by a state presence in any sector of the oil and gas industry, an NPC involved in all areas of the industry would simply be a way of killing a larger number of birds with a single stone.

The ambivalence towards the creation of an NPC to be found in the 1973 EMR report is also reflected in the House of Commons debates during the period extending from June to November of 1973.[27] The minority Liberal government seemed to be hedging its bets while the New Democratic Party pressed for the establishment of a state presence in the petroleum industry.

As the year progressed and the problems in the international petroleum market appeared more and more threatening, *both* New Democrats and Progressive Conservatives urged the government to establish a public entity which

would handle state-to-state negotiations and dealings, thus facilitating the task of ensuring adequate levels of crude oil imports to meet Canadian requirements. [28] But even then, the government was unsure of the direction to follow. In the past, private firms had served Canada well in this function, but the stated preferences of some oil exporting countries to deal with state-owned companies definitely increased the pressure on the government to establish an NPC which would at least act as an importing agent.

A fact that did not emerge until later in this debate is that there was already in existence a federal Crown corporation whose primary function was to act as an agent of the federal government in state-to-state dealings.[29] Canadian Commercial Corporation had been created in 1946 and in 1952, when its national defence functions had been taken over by another Crown corporation, it was maintained in existence because: ". . . foreign governments liked to be able to deal with a corporate entity. . . ."[30]

Since the *Canadian Commercial Corporation Act* required the corporation to "comply with any general or specific direction given by the Governor-in-Council or the minister (of Industry, Trade and Commerce),"[31] the government already had at its disposal an instrument which would be used to enter into state-to-state negotiations and deals. Of course, it would have been necessary to redirect the primary functions of Canadian Commercial Corporation towards acting as a government agent in negotiating terms and conditions for crude oil imports. Nonetheless, the main point that emerges is that the federal government did *not* need to create an NPC to meet the stated preferences of some crude oil exporting countries with which it intended to deal.

As we have seen, the pressure on the federal government to establish an NPC had been mounting throughout the second half of 1973. But even by late October, statements in the House of Commons by the Minister of Energy, Mines and Resources[32] gave the impression that, from the government's point of view, an NPC was still a concept in search of a rationale, economic or other. Soon, that was all to change.

The Second Stage: 1973 to 1978

The Genesis of the Petro-Canada Act

The EMR officials responsible for *An Energy Policy for Canada–Phase I* had intended to conduct a "Phase 2" study concerning Canada's energy future and outlining policy options available to the federal government. However, they were overtaken by events.[33] By the end of 1973, questions relating to the supply of non-renewable energy resources had again risen to the top of the public-policy agenda. As shown below, the compounded effects of several events and of new information further increased the pressure on the federal government to intervene in the oil and gas industry.

The first OPEC oil price shock, initiated late in 1973, took by surprise a world accustomed to an abundant supply of relatively inexpensive crude oil. All of a sudden, importing countries like Canada faced the prospects of much higher prices for a commodity which they considered essential to their economic well-being. Not only that, but as the 1973 Yom Kippur War progressed, it became obvious that some of the petroleum exporting countries would not hesitate to use their reserves of crude oil as a political weapon. The oil embargo led by Saudi Arabia against some Western countries (principally the Netherlands and the United States) resulted in increased calls for oil self-sufficiency in a number of countries including Canada.

These external events over which Canada had little or no control were accompanied by sudden and largely unexpected problems on the home front. In September 1973, one month prior to the beginning of altercations in the Middle East, the federal government froze domestic oil prices "in response to consumer complaints about higher prices unmatched by rising costs" and imposed a special tax on oil exports.[34] In addition, based on studies of its own and on submissions by the principal actors on the Canadian energy supply scene, the National Energy Board (hereafter, NEB) slashed its estimates of Canadian crude oil and gas reserves.[35] This was accompanied by the realization that the exploration and development of Canada's frontier (geographical and technological) sources of crude oil and natural gas would likely require huge capital investments. The public perception was that, in less than one year, Canada had gone from a position of relatively inexpensive and apparently abundant supply to one where non-renewable energy sources, and crude oil in particular, were now seen to be both more expensive and scarcer, with little or no encouraging prospects for the future.

To make matters worse, earlier in the year a U.S. multinational (Exxon) had reportedly used its Canadian subsidiary (Imperial Oil) to divert to the United States a portion of the imported crude oil flow destined for Canada.[36] The New Democratic Party, whose parliamentary support the minority Liberal government required to maintain itself in power, emphasized an argument that it had made on a number of previous occasions: the Canadian subsidiaries of multinationals cannot be expected to have the best interests of

Canada at heart, and hence something must be done to ensure that the national interest is paramount. The solution proposed by the New Democratic Party consisted of the establishment of a significant state presence in all sectors of the Canadian oil and gas industry.

After months of mounting pressure, exerted from both inside and outside the House of Commons, the federal government decided to act. On 6 December 1973, Pierre Elliott Trudeau, then Prime Minister, rose in the House of Commons to announce a new national oil policy for Canada. Its ultimate goal would be self-sufficiency in oil and oil products before the end of the 1970s.[37] The period of ambivalence was over: this new oil policy would include "the establishment of a publicly-owned petroleum company principally to expedite exploration and development."[38]

On the day of the announcement, the yet-to-be-created Crown corporation was given a number of objectives – a "mandate," as it would later be called. First, it was to explore for conventional oil and gas in the provinces and in areas exclusively under federal jurisdiction.[39] Second, the NPC would assist and participate in the research and development work necessary to develop an *in situ* technology to extract the crude oil from the vast reserves of oilsands located in Alberta. Third, the company would be given the capacity to invest in the development of oilsands deposits which could be exploited with existing technological methods. This participation, however, would be subject to the approval of the government of Alberta.

Fourth, although not precluded from developing reserves discovered as a result of its exploration activities, the Prime Minister suggested that the NPC might choose (with the government's encouragement?) to hold part of these reserves for the long-term energy needs of Canada. Fifth, the company was to be given the responsibility of acting as an agent of the Crown in negotiations and transactions designed to ensure, what were termed, "reliable and adequate imports of oil to meet [Canada's] present and foreseeable need for foreign oil."[40] The impression given is that the NPC would be the government's agent not only in state-to-state negotiations, but also in other transactions on the international petroleum market.

Finally, a remark made by the Prime Minister will be quoted because of its importance for post-1973 developments:

> ... the company will not be prevented by law from entering the refining and distribution fields, but its most immediate and present tasks may not lead to this for some time.[41]

The Prime Minister, however, did not elaborate on the nature of the conditions which would trigger the extension of the Crown corporation's mandate to include a presence in the downstream activities of the oil and gas industry.

Overall, the government perceived the role of the proposed Crown corporation as that of adding to the industry's capacity of discovering and producing the country's oil and gas resources, thus enabling Canada to become self-sufficient in oil earlier and for a longer period than would otherwise be the case.

> The national petroleum company will add significantly to the industry's total capacity to identify and bring into production Canada's oil and gas resources. It is not, however, intended in any way to displace the private sector .... Nor is it intended to discourage investment by foreign companies which will continue to be welcome.[42]

The proposed key method of "adding without displacing" – the term "catalyst" later became fashionable – was joint ventures. The company would be encouraged to enter into joint ventures with private firms as well as with agents of the provinces for purposes of exploration and development. It was also suggested that the NPC would seek to involve smaller Canadian-controlled firms in such ventures and thus bring about an increased Canadian presence in oil and gas exploration and development activities.[43]

If we attempt a comparison with the nature and objectives of an NPC in the 1973 EMR report, two important considerations emerge. First, as noted earlier, the 1973 EMR report cast its examination of the pros and cons of the creation of an NPC largely in a distributional context: arguments in favour of a state presence in the oil and gas industry are mostly concerned with issues relating to the ownership and control of the industry. In contrast, the December announcement relies heavily on arguments relating to security of supply. Most of these arguments can be interpreted as concerns about allocative efficiency: four of the company's proposed five objectives[44] are based on the government's belief that the social benefits of certain activities (i.e., those leading to earlier acquired and/or longer maintained oil self-sufficiency) are greater than the private benefits that they would generate.[45]

The high-risk nature of these activities was believed, at least by the government, to require long time horizons. In addition, imperfections in private capital markets are cited as creating a wedge between net private and net social benefits. Hence, the argument goes, a market economy, left on its own, would choose to underinvest in such risky activities and a state presence in the industry could then

bring about a more desirable social outcome. In addition, the nationalistic overtones of the 1973 EMR report were substantially toned down in the December announcement. Although the federal government still saw an NPC as a vehicle to ensure greater Canadian participation in the oil and gas industry, such redistributive concerns were now clearly of secondary importance. Based on this interpretation, it can be argued that in the December announcement the federal government sought to provide a more conventional normative economic argument to support the public-policy goals that would be pursued by an NPC.

The other point which emerges from this comparison flows directly from the above. The 1973 EMR report envisaged the creation of a fully integrated NPC, but the December announcement presents a company whose primary activities are in the exploration and development spheres, and for whom downstream activities, while not precluded by law, rank much lower on the list of priorities. Based on the above argument, this can be interpreted as saying that, at the time of the December announcement, the federal government saw no clear public-policy role for a state-owned company in downstream activities.

However, it is interesting to note that the two sources of "benefits" discussed in the 1973 EMR report which, we argued, flowed from allocative efficiency considerations were largely ignored in the December announcement. The NPC's possible "competitive influence on product prices" (source of benefit number 4 in Appendix A) was substantially downplayed since, as was suggested earlier, the government implicitly argued that there was no clear public-policy role to be played by a state-owned firm in downstream activities.

In addition, the "information for more enlightened rent collection policies" (source of benefit number 3 in Appendix A) aspect of the NPC's role was not mentioned in the Prime Minister's address of 6 December 1973. By then, the focus had shifted to issues related to oil self-sufficiency and security of supply. Hence, the role of an NPC, as perceived by the government, was that of a direct participant in exploration and development activities. Anything else seemed to be of secondary importance, at best.

Although the New Democratic Party had wished to see a broader role assigned to the NPC, it welcomed the announcement of the minority Liberal government's intentions on this issue. The Progressive-Conservative Party, meanwhile, supported the government's objective of oil self-sufficiency but reiterated its opposition to this form of government intervention in the oil and gas industry. Thus it was that five months later, on 2 May 1974, Bill C-32 (*An Act to Establish a National Petroleum Company – The Petro-Canada Act*) was read for the first time in the House of Commons. Six days later, however, the government suffered defeat in a House of Commons vote on an unrelated issue. The next day, Parliament was dissolved, and Bill C-32 died on the Order Paper.

The ensuing general election returned the Liberal government to power with a majority of the seats in the House of Commons. On 30 October 1974, shortly after Parliament reconvened, Bill C-8, which was identical to the previous Parliament's Bill C-32, received first reading in the House.

The contents of the Bill itself are worthy of attention. It seeks to set up an NPC – Petro-Canada – with the legal authority to become a participant in all aspects of the hydrocarbon resources business, from exploration to marketing. This was seen to include, for example, coal which had not previously been discussed as a possible sphere of activity for the proposed Canadian NPC. However, no mention was made of the proposal concerning the retention of discovered-but-undeveloped reserves first suggested in the December announcement. In addition, the "objects, powers and duties" of the company were very broadly defined and included no specific references to frontier activities, whether geographical or technological.

In most respects, however, Bill C-8 did not depart too much from established practices concerning the creation and operation of federal Crown corporations. As is the case with the enabling legislation of other such agents of the Crown, the Bill contained a clause through which Petro-Canada would have to comply with policy directions given it by the Minister of Energy, Mines and Resources.[46] The Bill also provided for the appointment by the federal government of a board of directors to oversee the activities of the company. Its functions would be the conventional ones with the exception that the Governor-in-Council (i.e., the federal Cabinet) would have to approve the company's annual capital budget. It has elsewhere been argued[47] that, of the three instruments of control outlined in this paragraph, the capital budgeting process is the key mechanism through which the federal government exercises its control over Petro-Canada. We will discuss this issue in more detail in Chapter 5.

Petro-Canada would be set up as a schedule D corporation under the *Financial Administration Act* which meant that the government intended it to be liable to the federal corporation income tax. Later, legislative changes ensured that all Petro-Canada subsidiaries were also liable to this form of taxation. As a schedule D corporation, Petro-Canada was assigned its first concrete task: it would take

over the federal share of Panarctic. Later, after the withdrawal of private participants or their indication that they would not pursue further certain ventures without an injection of federal funds, the government would add the monitoring of its investment in Syncrude and its participation in the Polar Gas Project[48] to the list of Petro-Canada's activities.

About six months later, on 8 April 1975, Bill C-8 was read for the second time and referred to the House Standing Committee on National Resources and Public Works. In an address to the House of Commons during the debate which preceded the second reading of the Bill, Donald Macdonald, then Minister of Energy, Mines and Resources, re-emphasized the reasons for creating an NPC which had first been suggested in the December announcement:

> The compelling reasons for [the] creation of a national petroleum company relate therefore primarily to security of supply – from our domestic resources and also possibly from abroad.[49]

Later in the same speech, Macdonald described a number of "side benefits" which would accrue to Canada as a result of the creation of an NPC. Those are reminiscent of some of the sources of benefits identified in the 1973 EMR report. Among them was the following:

> A degree of knowledge and insight will be available which simply cannot be acquired by other means. This insight will extend to a first-hand experience of the effects of our own and provincial government's [sic] policies, and thereby to the appropriate design of those policies to the benefit of all parties.[50]

Although directly inspired by the 1973 EMR report (Appendix A, sources of benefit numbers 2 and 3), this is the first statement in which the federal government explicitly reveals its intention to rely on Petro-Canada to provide it with a "window on the industry," as this would later be called.

Nonetheless, such side benefits would simply be desirable joint products and were not the company's *raison d'être*. As we have seen earlier, that role was played by the government's desire to induce an increase in the flow and stock supply of hydrocarbon resources (and particularly oil) in Canada. This fact was emphasized by Macdonald in his appearances before the Standing Committee on National Resources and Public Works:

> The principal thrust of this corporation will be in the developing of additional supplies . . . [its] first major activity will be to carry the federal share of the Syncrude development . . . .[51]

Although Petro-Canada would be expected to act as the government's agent in state-to-state transactions, the Minister did not see a substantial role for the Crown corporation in exploration and development activities outside Canada:

> It is conceivable that years in the future, with the success of the Corporation or with the acquisition of an operation which might include some foreign lands might come into its possession. But the primary purpose in the early years, and I am talking of a decade or more, is going to be to enhance the security of supply for Canadians from domestic sources rather than going abroad.[52]

On numerous occasions, Macdonald also assured the committee that the company's entry into refining and marketing was considered a low-priority item by the government:

> . . . the intention is to supplement the capacities of the Canadian petroleum community to explore for and develop additional hydrocarbon deposits and in this sense the entering into the refining and marketing business would not be one of the primary objects of the Corporation at this particular time.[53]

The picture of Petro-Canada which emerges from a reading of the transcripts from the relevant House of Commons debates and the submissions to the Standing Committee on National Resources and Public Works is that of a company primarily involved in the upstream activities of the oil and gas industry. These activities would be concentrated on Canada's geographical and technological frontiers; a few specific projects in these areas (Syncrude, Panarctic) are singled out. However, the Crown firm would not be expected to be a participant in exploration and development activities taking place outside Canada. Petro-Canada would also seek to undertake joint ventures with other public or private participants, in particular small Canadian-controlled firms. Finally, the company would act as the government's agent in state-to-state negotiations and transactions involving hydrocarbon resources and in particular, imports of crude oil.

Although the Canadian oil and gas industry had, by and large, reacted quite negatively to the announcement of the government's intention to create an NPC, less than two years later some industry officials were more positive towards a greater state presence in upstream activities:

> Assuming that you [elected representatives] do make the decision that Petro-Can is to be, then we [oil industry] feel

> that we have no problem, we have no quarrel with Petro-Can. . . . We will co-operate with Petro-Can to the utmost extent.
>
> I would like to add one caveat to that . . . if Petro-Can is going to operate in our environment with us as a competitor, and in some cases as a partner if we get into joint ventures, then what we would like to ask of the government is that when they set up Petro-Can, they set it up in exactly the same manner as any other oil company, that they do not give Petro-Can any preferred status. . . .[54]

The last part of this statement is rather interesting, for it expresses concern over the idea that Petro-Canada might somehow benefit from its status as a Crown corporation in ways that would not be accessible to private-sector firms. Some Progressive-Conservative members of the Committee echoed the sentiments of these industry officials. This suggests that, although not well articulated at the time, there existed a concern over the interface of government policy in a given area and the activities of a state-owned firm in the same area. We will later return to this point, albeit in a slightly different context.

After a long period of discussion, marked by a number of acrimonious exchanges, Bill C-8 emerged from committee with few substantive modifications. The amendments retained by the committee were principally concerned with the powers that the *Act* would give to the Minister of Energy, Mines and Resources. The most important of these amendments called for Petro-Canada to receive *written* instructions concerning policy matters from the Governor-in-Council, and not an individual Minister, as the Bill had originally proposed. It should be noted that neither the version of Bill C-8 that was referred to committee nor the version which became the *Petro-Canada Act* contained any references concerning the accountability of Petro-Canada to Parliament. This issue will be discussed in Chapter 5's treatment of monitoring and control.

Early in July, the amended Bill C-8 was returned to the House of Commons and was read for the third time. The *Act* received Royal Assent on 30 July 1975.

The First Years of Operation

The new Crown corporation began operations about five months later, on 1 January 1976. The story about the four employees (one of which had been seconded from EMR) sitting around the breakfast table in their Calgary hotel and asking each other, "Now what?" has since become part of the Petro-Canada folklore.[55] Nonetheless, Petro-Canada faced three very serious problems. First, its mandate instructed it to be an exploration and development company, but it had no land base, either in conventional areas or in the remote areas comprised in Canada's geographical frontiers. Second, apart from a few senior executives, the company had no management personnel. Finally, it had no ready source of cash flow.

Petro-Canada assembled its top management team by hiring well-qualified individuals away from other oil and gas companies operating in Canada. This team then proceeded to negotiate a number of farm-in[56] and other joint-venture arrangements with other exploration and development companies. However, it was realized that this would not put Petro-Canada in the driver's seat anywhere, nor would it provide the company with a source of cash flow. The company was also increasingly feeling the need for competent middle-management personnel. As a result, Wilbert Hopper, who had earlier left Arthur D. Little Inc. to become Assistant Deputy Minister of EMR and who was now Senior Vice-President of Petro-Canada, began to negotiate the terms of the Crown corporation's acquisition of Atlantic Richfield Canada Limited (hereafter, ARCAN).

ARCAN was the Canadian subsidiary of Atlantic Richfield Company Limited, the same company which we earlier encountered in conjunction with the activities of Home Oil. ARCAN had felt the financial pressures which hit its parent company and had decided to pull out of the Syncrude project. In fact, it was that decision which had brought about the federal government's direct involvement in this project, a role now assumed by Petro-Canada. The U.S. parent was interested to sell, and ARCAN was ideal from the Crown corporation's point of view. It had middle-management personnel and producing acreage in Western Canada, which would provide both cash flow and a land base in the short run.

Negotiations began as early as January[57] and by the beginning of August 1976, the assets of ARCAN had been acquired by Petro-Canada and were in the process of being reorganized into Petro-Canada Exploration Incorporated, a wholly-owned subsidiary of the federal Crown corporation.[58] As Table 2-1 indicates, the total cost of the ARCAN acquisition was about $340 million. Of this amount, $240 million was financed through the issuance of income debentures to a Canadian chartered bank, $24 million through operations while the remaining amount (approximately $75 million) came directly from the federal government.[59]

In 1976, the federal government published a document outlining a series of energy policy options for Canada. *An Energy Strategy for Canada: Policies for Self-Reliance*[60]

Table 2-1

Petro-Canada – Assets and Acquisitions

	Total assets	Plant, property and equipment	Cash considerations for acquisitions	
		($ Millions)		
1976	714.0	573.6	ARCAN	342.4
1977	878.7	718.8	--	--
1978	3,348.9	2,087.2	Pacific	746.9
1979	3,411.3	2,671.7	Pacific	749.5
1980	3,766.8	2,950.7	--	--
1981	6,617.5	4,911.4	Petrofina	825.5
1982	7,552.1	5,615.0	Petrofina	350.3
1983	8,239.0	6,247.7	Petrofina BP Canada	424.7 121.6
1984	9,055.3	6,605.4	BP Canada	1.2
1985	8,846.1	6,030.2	BP Canada Gulf Canada	302.0 713.9

SOURCE Petro-Canada, *Annual Reports*, various issues.

(hereafter, the 1976 EMR report) examined Canadian energy prospects to 1990 and outlined a "National Energy Strategy" which would lead to energy self-reliance by that time. Within this context, the 1976 EMR report sketched a three-pronged role for the country's new NPC. First, the Crown corporation was assigned an exploration role and would figure prominently in efforts to obtain what was termed:

> *more accurate and timely information* with regard to the extent and costs of the Canadian resource base, and frontier oil and gas discoveries in particular.[61]

Second, the 1976 EMR report suggested that Petro-Canada would participate in development activities for both oil and natural gas. The 1976 EMR report again expressed the federal government's view that, in both exploration and development, the Crown firm would act as a catalyst and would thus not seek to replace private participants. In certain areas (e.g., frontier exploration), the document also perceived Petro-Canada as acting to supplement the efforts of private firms.[62] It should be noted, however, that the task of monitoring certain practices of the oil and gas industry (e.g., the use of industry cash flow) and hence, certain aspects of the "window-on-the-industry" function, were specifically assigned to a yet unnamed reporting "system."[63]

Finally, it was hoped that the newly created NPC would bring about a higher degree of Canadian content and participation in the oil and gas industry by engaging in joint ventures (mainly in frontier areas) with Canadian-owned companies for which the capital requirements of such undertakings would otherwise be out of reach. At this stage, it is important to note that, consistent with government pronouncements dating back to December 1973, the 1976 EMR report assigned no policy role (in fact, no role at all) for Petro-Canada in downstream activities. Even when discussing the possibility of using the Crown firm to enhance the degree of Canadian ownership and control, the document steered clear of references to integration into refining and marketing:

> In addition [to the Foreign Investment Review Agency], greater Canadian content and participation will be reinforced by: . . . the entry of Petro-Canada into *exploration and development*. . . .[64]

In accordance with the federal government's revealed preferences, Petro-Canada's activities in 1976 thus consisted mainly of monitoring Ottawa's investments in certain

projects (Syncrude, Panarctic, Polar Gas Project) and exploring Canada's geographical and technological frontiers.[65] As the numbers reported in Table 2-2 reveal, two of these activities (frontier exploration and Syncrude development) accounted for more than 90 per cent of Petro-Canada's capital expenditures during that year. By comparison, capital expenditures on conventional exploration and development in Western Canada accounted for $7 million (about 3 per cent of total capital expenditures), one-quarter the amount spent on frontier exploration. Finally, no expenditures were undertaken on exploration and development outside Canada.

An examination of Petro-Canada's capital expenditures for 1977 reveals a pattern very similar to that outlined in the previous paragraph. As revealed in Table 2-2, capital expenditures on frontier exploration and Syncrude development account for approximately 77 per cent of the total. Although capital expenditures on exploration and development in Western Canada rose (no doubt as a result of the ARCAN acquisition), both in absolute terms and relative to expenditures in frontier areas, these still accounted for a small proportion of total capital expenditures. Table 2-2 also reveals that Petro-Canada's exploration and development activities outside Canada continued to play an insignificant role in the company's activities.

Chart 2-1 shows more clearly the role played by Petro-Canada in sustaining exploration activity in the Eastern offshore region. Although the early 1970s had witnessed a rush to explore the regions offshore from Canada's East coast, disappointing results had induced a fall in well completions from the 1973 peak. Though overall activity levels (as measured by well completions) remained low compared to 1973, Petro-Canada participated in more than 80 per cent of the Eastern offshore wells completed between 1976 and 1978.[66] The consequences of the absence of an offshore "land" base are also evident from Chart 2-1, Petro-Canada acted as operator on only a few of its 1976-78 exploration ventures in the Eastern Canadian offshore region.

Table 2-2

Petro-Canada – Capital Expenditures and Petroleum Incentive Program Receipts[1]

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
					($ Millions)					
Exploration and development										
Foreign	--	1	1	16	21	20	3	6	36	25
Western Canada	7	29	74	176	221	224	299	250	232	311
Frontiers	28	49	59	77	119	207	371	581	602	443
Oilsands										
Syncrude	170	89	79	13	10	16	30	24	31	60
Other	1	1	1	4	19	15	20	5	53	30
Manufacturing and NGLs	--	--	2	41	5	50	142	49	90	115
Marketing	--	--	2	6	10	30	62	59	46	53
Other	8	9	14	11	24	35	43	35	55	26
Direct capital expenditures[2]	214	177	231	343	429	597	970	1,009	1,145	1,063
PIPs[3]	--	--	--	--	--	(139)	(300)	(469)	(380)	(349)
Net of PIPs	214	177	231	343	429	458	670	540	765	714

1 Statistics Canada maintains a deflator for investment in mines, quarries and oil wells (1971 = 1.0). Values for this series are as follows:
1975 = 1.49 1978 = 1.93 1981 = 2.56 1984 = 2.81
1976 = 1.63 1979 = 2.13 1982 = 2.77 1985 = 2.86.
1977 = 1.80 1980 = 2.30 1983 = 2.81

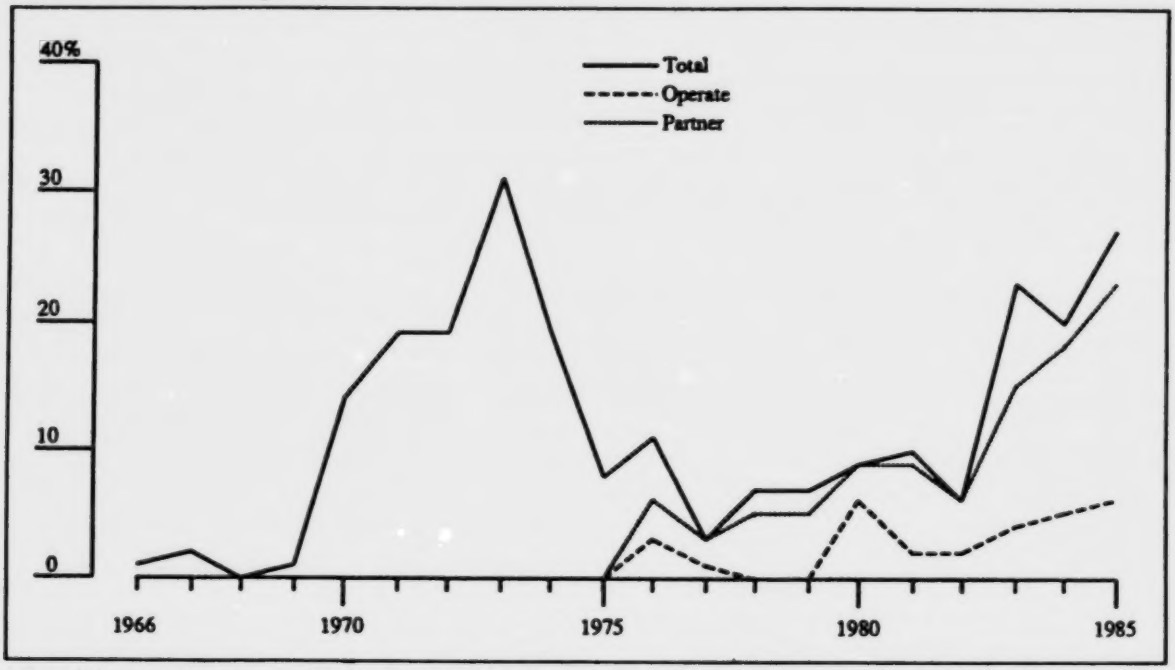
2 Direct capital expenditures consist of amounts spent on property, plant and equipment and deferred charges, and are net of investment tax credit where applicable. These figures do not include the costs of acquisitions. Individual items may not add up to totals due to rounding errors.

3 PIPs represent receipts from the federal and Alberta petroleum incentive programs.

Source Petro-Canada (1986; 1987).

Chart 2-1

Offshore Well Completions – East*



* The underlying data have been assembled from *Eastern Offshore News*, *Oilweek*, the Canadian Petroleum Association's *Statistical Handbook*, MacGregor and Plourde (1986), *Annual Reports* of the Canada Oil and Gas Lands Administration, publications entitled "Oil and gas activities" and "Schedule of wells: Northwest Territories and Yukon Territory" released by the federal department of Indian and Northern Affairs, and Canada, Indian and Northern Affairs (1980), Index A.

Operate	represents wells for which Petro-Canada acted as operator.
Partner	represents wells in which Petro-Canada participated, either as operator or as non-operating partner.
Total	represents the total number of oil and gas well completions in the relevant areas.

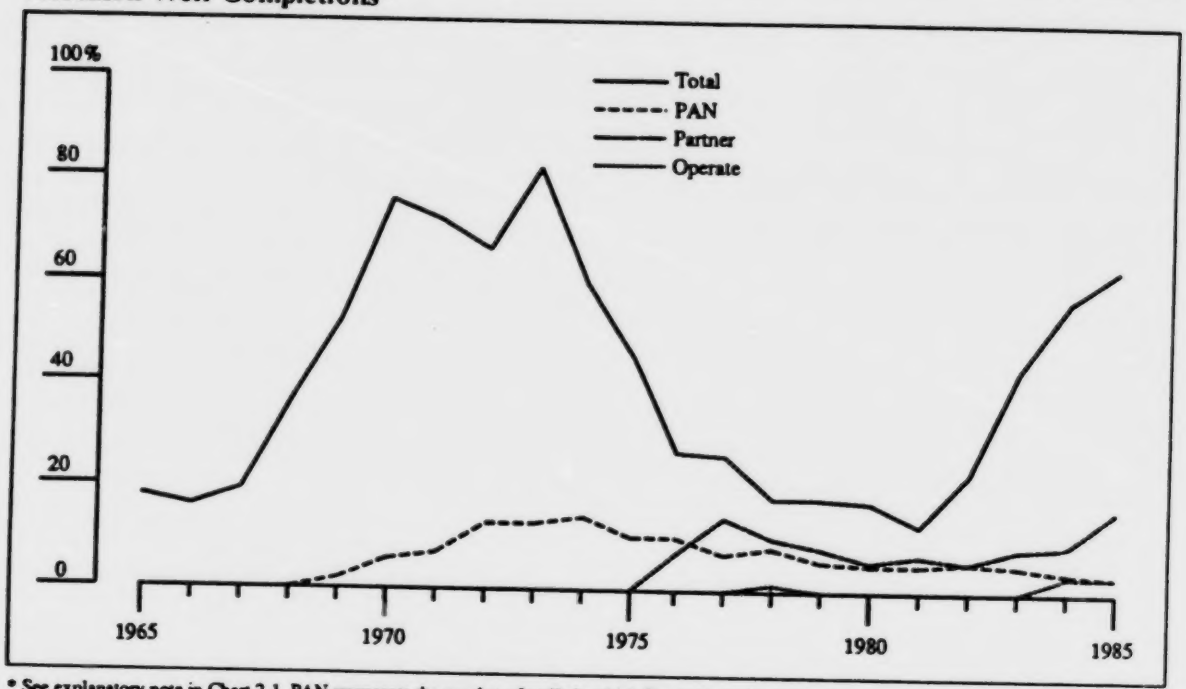
During this period, Petro-Canada was also active in Northern exploration programs, both on its own and through the activities of the Panarctic consortium, as shown by Chart 2-2. As this chart reveals, Petro-Canada's entry into Northern exploration activities resulted in a reduction of the rate at which well completions had been falling since the peak of 1973. As with Eastern offshore activities, the lack of a land base made it difficult for Petro-Canada to act as operator of Northern exploration drilling programs in the first few years following its creation.

Between 1976 and 1978, Petro-Canada also proposed a few large projects directly aimed at frontier energy resource development. The most ambitious of these was the Arctic Pilot Project, in which Petro-Canada played a leadership role. This project, undertaken in conjunction with Alberta Gas Trunk Line (later, NOVA, An Alberta Corporation) and Melville Shipping, aimed at using tankers to transport liquefied Arctic natural gas to Southern markets. This project was first proposed in 1977, and was actively in Petro-Canada's plans until 1982 when its indefinite deferral followed an unfavourable National Energy Board decision.[67]

As the evidence presented above suggests, Petro-Canada's activities during the first few years following its creation were primarily concerned with the exploration and development of oil and gas resources on Canada's geographical and technological frontiers. Such activities, of course, had been central to the justification of the establishment of an NPC publicly made by government officials since December 1973. On a broader scale, however, what

Chart 2-2

Northern Well Completions*



* See explanatory note in Chart 2-1. PAN represents the number of wells in which Panarctic participated, either as operator or as non-operating partner. "Northern" here stands for the Yukon and Northwest Territories, and contiguous offshore areas such as the Beaufort Sea. Petro-Canada is here considered a participant in all Panarctic wells spudded after 31 December 1975.

did Petro-Canada perceive its role to be during these first few years? The company's *1976 Annual Report* offers some insight into this question:

> Petro-Canada's mandate emphasizes certain goals: *to increase the supply of energy available to Canadians . . . to assist the government in the formulation of its national energy policy . . . to increase the Canadian presence in the petroleum industry.*[68]

The first and third "goals," as they are called, are consistent with the spirit of the legislation and of the government's declared intentions. However, this is not as clearly the case for the second goal listed above. Granted that the explanation provided in the *Annual Report* for this second goal refers mostly to information or "window-on-the-industry" aspects discussed in the 1973 EMR report and thereafter, but the word "formulation" suggests a much broader role. Perhaps this concern emanates simply from an unfortunate choice of words but, it might also reveal a desire on Petro-Canada's part to be involved at the ground floor of energy policy formulation in Canada. In any case, this theme will reappear later in our discussion.

On the topic of refining and marketing, the announced Petro-Canada policy coincided with the federal government's. As Hopper, who by the end of 1976 had been appointed President of Petro-Canada, told the Standing Committee on National Resources and Public Works:

> . . . I have said publicly on several occasions that refining and marketing were not high priority activities for Petro-Canada . . . I think refining and marketing is less profitable than exploration and production.[69]

He goes on to outline two conditions which he feels must both be met before Petro-Canada would consider entering into refining and marketing:

> We have no current plans to go into refining and marketing but I must say to you that if a golden opportunity presented itself *and* if there were public-policy purposes to be served by moving into refining and marketing, then I think we, as a company, would have to consider it very carefully.[70]

Based on the material presented above, we advance the following proposition: until the first few months of 1978, the observed behaviour of Petro-Canada did not depart appreciably from the vector of activities defined as appropriate for an NPC by the federal government through its public pronouncements dating back to December 1973.

The Third Stage: 1978 to 1984

Expansion into Downstream Activities

By the middle of 1978, Petro-Canada was embroiled in a battle for the control of Husky Oil Limited (hereafter, Husky). The Crown corporation had reportedly made the first bid to acquire the assets of Husky but soon thereafter, an American firm based in Los Angeles, Occidental Petroleum Company, had countered with an offer of its own. By the middle of July, however, both of these bids had proven unsuccessful as Alberta Gas Trunk Line (later to become NOVA, An Alberta Corporation) had acquired control of Husky through an adroit market purchase of its outstanding stock.[71]

Husky was unique among the top Canadian oil producers: nearly half of its assets were located in the United States. Its exploration program stretched from the continental United States, to Canada, to the Alaskan North Slope and on to Pakistan and the Philippines. But most importantly, Husky was a vertically integrated firm – it owned oil refineries and retail product outlets in the United States and Canada.[72]

Given the arguments presented in the previous sections, two questions concerning this proposed acquisition immediately arise. If Petro-Canada's activities were to be concentrated in Canada, as the discussions which preceded the enactment of the *Petro-Canada Act* indicated and as the 1976-77 pattern of capital expenditures by the corporation had established, then why did it try to acquire a firm with a relatively strong presence in the United States? In addition, why was Petro-Canada seeking to expand into downstream activities? It is possible, of course, that Petro-Canada intended to divest itself of Husky's downstream and U.S.-based assets after the takeover, and hence only be interested in acquiring Husky's upstream assets to strengthen Petro-Canada Exploration and increase its landholdings. There are indeed reports suggesting that the above might be, at least in part, correct: it is argued that Petro-Canada intended to take over Husky's Canadian downstream operations but that the Crown firm would divest itself of the U.S. operations. Although there were questions as to whether Petro-Canada would operate Husky's refining and marketing network,[73] there were no public statements by officials of the Crown corporation concerning the fate of Husky's downstream assets in the event of a successful takeover by the Crown corporation.

In any case, these issues were never fully discussed in public statements by Petro-Canada or the federal government, either during or after the takeover attempt. Although the proposed acquisition of Husky by Petro-Canada occupied a fair share of the time allocated to members' questions in the House of Commons over a 19-day period,[74] the information that transpires from these deliberations does not shed much light on the issues raised above.[75]

The federal government outlined two main factors which argued in favour of the proposed Petro-Canada takeover. First, since Husky was a U.S.-owned and -controlled company, its acquisition by Petro-Canada would increase the degree of Canadian ownership and control in the oil and gas industry. A second factor, however, dominated the discussion: the development of heavy oil deposits located near Lloydminster, in the province of Saskatchewan. Husky held the relevant land leases and had so far resisted Petro-Canada's urgings to begin, jointly with the federal Crown corporation, a large-scale development of these reserves. After more than a year of unsuccessful attempts to persuade Husky, the federal government came to agree with Petro-Canada's assessment that the latter's acquisition of Husky provided the only course of action which would bring about the development of the Lloydminster heavy oil deposits in the near future.[76] However, the federal government's pronouncements on the proposed Petro-Canada acquisition contained no reference to Husky's U.S.-based assets nor were the existence and extent of its downstream activities ever discussed.

The opposition members in the House of Commons were divided on this issue. The New Democratic Party welcomed the move. After all, it had a long record of support for Petro-Canada and pressed for a much wider role for the Crown corporation than the Liberal government had proposed and, until now, sanctioned.

The Progressive-Conservative Party still considered Petro-Canada to be an unnecessary government intrusion into private-sector activities. Hence, it was argued, a Tory government would return the assets of the Crown corporation to the private sector – "privatization" was the term used to describe this policy option. The Progressive-Conservative members of the House of Commons chose to attack the proposed Husky purchase on principle (a basis on which they were certain to lose), and did not seek to elicit information from the government on the reason behind the implicit

decision to allow Petro-Canada to expand its activities outside Canada as well as into downstream sectors. Therefore, one of the most important potential oversights on any enhanced role of Petro-Canada was lost on ideological grounds.

When it was realized that Petro-Canada's bid for Husky had failed, the issue ceased to be mentioned in the House of Commons. This would prove to be but a short respite. On 10 November 1978, Petro-Canada completed the first phase of what was to become the largest corporate acquisition ever made in Canada, to that date. The Crown corporation acquired a controlling interest in Pacific Petroleums Limited (hereafter, Pacific), and would purchase the remaining portion of the equity stock in the company by the middle of 1979.[77] As shown in Table 2-1, the aggregate cost of the Pacific takeover reached $1.5 billion. Petro-Canada financed this acquisition by issuing US$1.25 billion in preferred shares to a group of Canadian chartered banks.[78] The choice of issuing these preferred shares in U.S. dollars was reportedly made at the behest of the federal government.[79]

Alastair Gillespie, then Minister of Energy, Mines and Resources, stated that Pacific's acquisition by Petro-Canada had been a commercial transaction whose main objective had been to provide a means to reduce the Crown corporation's reliance on the federal government as a source of equity-financing for its investments in various projects.[80] The cash flow generated by the Pacific assets, mainly as a result of conventional oil and gas production, would provide a source of internally generated funds with which Petro-Canada would primarily finance its frontier exploration projects.

At the time of its acquisition by Petro-Canada, Pacific was primarily involved in oil and gas production activities. It was nonetheless a vertically integrated company with a presence in refining, distribution and marketing to the west of Thunder Bay. Since most of the company's assets were located in Canada, its acquisition by Petro-Canada does not give rise to the questions relating to potential involvement in the United States, as was the case with Husky. However, issues related to Petro-Canada's entry into downstream activities still arise.

Petro-Canada provided an explanation for its decision to acquire the assets of Pacific:

> The fundamental goal of Petro-Canada in proceeding with the acquisition of Pacific Petroleums was to become a significant and balanced presence in Canada's oil and gas industry. The first three years of Petro-Canada's activity and expenditures have been predominantly and disproportionately oriented to high-risk, long-lead-time projects. Its investments [in some of these projects], *taken over at the request of the Government of Canada*, do not provide an immediate cash return. . . . These activities undertaken in the pursuit of the Corporation's mandate are, as participation by private sector partners shows, well within the same business parameters of the industry, but *only when they are balanced by less risky and profitable returns* . . . Petro-Canada now has greater immediate cash flow to help support [longer-term] activities.[81]

This is broadly consistent with the reasons then offered as to why the federal Cabinet had approved the transaction.[82] It should be noted that in the ensuing public pronouncements, nowhere is the argument made that Petro-Canada's entry into downstream activities was dictated, even only in part, by either aspects of the Crown firm's "window-on-the-industry" function, or a broader public-policy role.[83]

Although the maintenance of Pacific's retail service outlets by Petro-Canada was regarded as somewhat of an open question, officials of the Crown firm were reportedly discussing the possibility of issuing Petro-Canada credit cards a few days after the official announcement of the Crown corporation's intention to acquire the assets of Pacific.[84] In any case, reports of the developments during the Husky and Pacific takeover attempts strongly suggest that the decision to make these two bids originated with Petro-Canada's management which had then sought the approval of its Board of Directors and of the federal Cabinet.[85]

Three key observations flow from the above statements. First, Petro-Canada's expansion into downstream activities meant that it would now actively compete with existing firms for a share of the consumer's dollar. This marks a change in the orientation of the corporation, in terms of both the scope of its activities and the notion that some of these activities would now create a competitive relationship between Petro-Canada and private firms. As suggested earlier on, these aspects of the Crown firm's involvement in the oil and gas industry, though not precluded by law, had been downplayed in the days when Bill C-8 was being shepherded through Parliament.

Second, the quotation from the corporation's *1978 Annual Report* conveys a noticeable desire on the part of *Petro-Canada* to emulate more closely the behaviour of other players in the oil and gas industry. Third, the suggestion that some of the corporation's activities, though well within any reasonable definition of its mandate, were undertaken only as a result of requests on the part of the federal government underlines one of the fundamental dilemmas of Crown

corporations. If they are expected to provide longer-term, "social" returns, these corporations cannot be judged on the same bases as other market-oriented firms.

What is particularly frustrating from our point of view is that, at the time the Pacific acquisition took place, these issues did not enter the public debate. Similarly, the exchanges in the House of Commons do not provide much enlightenment on the issues raised above. The New Democratic Party expressed its general approval of the transaction, while Progressive-Conservative members severely criticized it. This time, however, the Tories chose to concentrate their criticism on the mechanics of the acquisition, the intended method of financing it and other related considerations.[86]

Less than six months after Petro-Canada's initial acquisition of a portion of Pacific's equity stock, a federal election had replaced the majority Liberal government with a minority Progressive-Conservative government. The federal Tories were in a tough position. They had fought long and hard against the establishment of Petro-Canada and had vowed, if elected, to return its assets to the private sector. Now that they were in a position to do something about it, public pressures were pushing them in the opposite direction. The Tories were particularly incensed at the Pacific takeover since they felt that both the timing and the target had been chosen so as to make Petro-Canada a more difficult entity for any new government to "privatize."[87] Soon after the Clark government had been sworn in, Ray Hnatyshyn, the newly appointed Minister of Energy, Mines and Resources, ordered Petro-Canada to put a halt to the integration of Pacific's assets with those of the Crown firm.[88]

The new government appointed a Task Force to examine the entire Petro-Canada situation. Its report suggested that the Crown corporation be divided into two companies. The first one, which would remain an agency of the federal government, would concentrate its activities in frontier exploration and development. A second company would see its assets returned to the private sector and would pursue Petro-Canada's commercially profitable ventures.[89] This proposal proved to be unpopular with the public and the federal Cabinet; the latter rejected the Task Force's proposal and eventually decided to adopt a different divestment plan.

Even before the Task Force had issued its report, the government had "quietly lifted its curb on Petro-Canada's absorption of Pacific...."[90] Although the Clark government still intended to dispose of at least part of Petro-Canada's assets, none of its proposals in this direction was supported by the public. On a similar note, the Canadian oil and gas industry expressed its willingness to co-exist with the Crown subject to the removal of a few "irritants."[91] One of the "irritants" mentioned by industry officials was Petro-Canada's refining and marketing network acquired as a result of the Pacific takeover. Therefore, if the management of Petro-Canada had viewed the firm's expansion into downstream activities with reservations, it could have used this occasion to propose a limited divestment plan which would likely have been viewed with favour by both the industry and the firm's sole shareholder. This did not materialize and was, at least in part, due to a fact that was now clear to Petro-Canada officials and to the minority Progressive-Conservative federal government: the Crown firm's retail operations were very popular with the Canadian public.[92]

Evidence showing that the sales volume of Pacific retail outlets rose faster than the industry average after the acquisition would later be introduced into the political debate.[93] It was then argued that Petro-Canada retail outlets provided a concrete representation to the public of the increased degree of Canadian ownership and control in the oil and gas industry. Canadians liked what they saw; Petro-Canada sold more gasoline and rose in the public's esteem. Whatever had been the intentions of Petro-Canada's management with respect to the recently acquired downstream assets, this strong degree of public support clearly did nothing to strengthen the arguments favouring divestment.

Whether the Crown firm initially sought to acquire downstream assets cannot readily be determined from the available evidence. However, as shown above, it is clear that Petro-Canada held on to its refining and marketing assets even during the period when its sole shareholder seemed intent on returning to the private sector at least some of those assets which served no public-policy purpose (a category into which clearly fell the Crown corporation's downstream assets). In other words, whether Petro-Canada initiated the Husky bid and the Pacific takeover with an eye on these firms' refining and marketing assets or whether it stumbled into downstream activities (and the accompanying strong current of public support), it is clear that once it had acquired a presence in refining and marketing, Petro-Canada was not anxious to divest itself of it, even in the face of political opposition.

The National Energy Program and Petro-Canada's Subsequent Acquisitions

When the minority Progressive-Conservative government failed to secure the House of Commons' approval of

its first budget, Parliament was dissolved and a majority Liberal government was returned in the ensuing election.[94] The period of Tory government had ushered in a feeling of uncertainty about Petro-Canada's mandate and its future. However, the election served to reduce substantially this uncertainty since during the campaign, the Liberal Party had promised to strengthen and expand Petro-Canada.[95] Once in office, the newly elected majority Liberal government quickly reaffirmed its intention of allowing Petro-Canada to expand dramatically. Marc Lalonde, recently appointed Minister of Energy, Mines and Resources, suggested that this expansion could well be fuelled by takeovers.[96]

From Petro-Canada's perspective, the last 12 months or so had been quite eventful. The Iranian revolution and its aftermath had made possible the second world oil price shock. The government that had created Petro-Canada was defeated in a general election, and replaced by one which sought to return some of its assets (and activities) into the hands of the private sector. This government had in turn been defeated, first in the House and then in a general election, and replaced by one which supported an expanded role for Petro-Canada.

A clearer notion of what the new majority Liberal government understood by "an expanded role for Petro-Canada" emerged later in 1980. Towards the end of October of that year, the federal government introduced the National Energy Program (NEP) which, among other things, sought to increase the degree of Canadian ownership and control of the domestic oil and gas industry. The document which outlined the NEP suggested that Petro-Canada would be a key vehicle in the pursuit of this goal. However, it also warned that the government would not allow Petro-Canada to be the sole beneficiary of these proposed takeovers and would set up additional Crown corporations in the oil and gas industry to ensure that competition prevailed among the state-owned firms.[97]

This has been interpreted by some as signalling an increase (backed by the federal government in office at the time) in the interventionist nature of Petro-Canada's mandate.[98] While we agree with the basic thrust of this argument, we would also argue that this also broadened the focus of the Crown corporation's mandate, from that of a firm whose activities were primarily aimed at enhancing Canada's security of energy supply to one where the "Canadianization" of foreign-owned assets in the domestic oil and gas industry would now also be a determinant of Petro-Canada's activities. In other words, the rationale for Petro-Canada's (continued) existence offered by the federal government shifted from one which accented economic efficiency considerations (as in the December 1973 announcement) back to one which emphasized distributional issues (as in the discussions surrounding the change in ownership of Home Oil in 1970, and the 1973 EMR report). However, it is important to note that Petro-Canada's expansion into downstream activities pre-dates the introduction of the NEP, and that the decision to enter refining, marketing and retailing may well have originated with the Crown firm itself.

The NEP announcement was followed by two major Petro-Canada acquisitions, that of Petrofina Canada Limited (hereafter, Petrofina Canada) in 1981, and that of the downstream assets of BP Canada Limited (hereafter, BP Canada) in early 1982. Given the public outcries that had dogged the Tories' attempts to change the status of Petro-Canada, these two moves (and especially the first one) were likely seen as politically shrewd by both Petro-Canada and the federal government.

The federal Liberals would benefit by increasing the visibility (mainly in Eastern Canada) of a company enjoying a high degree of public support and being perceived by the electorate as being responsible for such a development. Petro-Canada, on the other hand, would acquire additional sources of cash flow and, by increasing its degree of vertical integration, would make partial divestiture (in the sense of breaking apart the company along commercial- versus policy-oriented lines, as had earlier been suggested by the Tory-appointed Task Force) more difficult to accomplish and hence less likely to occur.

By the time these two moves were completed, Petro-Canada was one of the larger retailers of oil products in Canada, with a refining and marketing presence extending from coast to coast as well as into the Territories. Following these two acquisitions, a senior Petro-Canada official declared that: "[we] have completed our downstream development. . . ."[99]

Since they reveal interesting aspects of Petro-Canada's behaviour as well as of the relationship between the Crown corporation and its parent government, we will now turn to a more detailed examination of these two acquisitions.

In February 1981, the Crown corporation made a successful bid to acquire the assets of the Belgian-controlled Petrofina Canada (it was subsequently renamed Petro-Canada Enterprises Incorporated).[100] This move allowed Petro-Canada to acquire a downstream presence in Eastern Canada, thus complementing its presence in the Western provinces, obtained as a result of the Pacific takeover.

As Table 2-1 shows, the reported cost of the Petrofina Canada acquisition was $1.6 billion, which was financed by funds obtained from a three-year revolving term loan by two Canadian chartered banks. The method of repayment for this loan is of itself interesting. The federal government introduced a special levy, the Canadian Ownership Special Charge, on all natural gas and oil products sold in Canada. The proceeds of this levy would flow into the Canadian Ownership Account and these would then be transferred to Petro-Canada to repay the revolving term loan. In return, Petro-Canada issued non-interest bearing convertible notes to the federal government. These notes would later be converted into common shares.[101] Prior to the acquisition of Petrofina Canada, the total capitalization authority (both equity and debt) provided in the *Petro-Canada Act* had almost been exhausted. Therefore, to give the federal government the legal right to contribute more equity to Petro-Canada (and thus give the Crown corporation the financial means to acquire Petrofina along the lines described above), the corporation's constituent *Act* had to be amended.[102] The necessary amendments were included in the Energy Omnibus Bill which had led to the now-famous bell ringing incident in the House of Commons in 1982. To resolve the deadlock, the Liberal government had agreed to break apart the Omnibus Bill and set up a standing committee of the House to study all of the resulting energy-related Bills.

In the course of its deliberations, the House Standing Committee on Energy Legislation considered the provisions of Bill C-101, *An Act to Amend the Petro-Canada Act*. After having suffered the consequences of their policy approach to Petro-Canada in 1979, the Progressive-Conservative members of the committee expressed more interest in the scope of the Crown corporation's involvement in the oil and gas industry. Specifically, some Tory members were now concerned with Petro-Canada's entry into refining and marketing activities:

> . . . when Petro-Canada was being formed, Donald Macdonald said that really the only reason the permission or ability to get into pumping gasoline was in the act was for flexibility; that the intent of Petro-Canada was to encourage self-sufficiency, to provide an agency that could deal with other socialist countries who wanted to deal with state companies and to provide a window on the industry. Really, these are the national purposes. . . . As it turns out, Petro-Canada has pursued the pumping of gasoline, running service stations, very aggressively. . . . My question really is: To your mind, what national purpose is served in this regard?[103]

In providing an answer to this question, Joel Bell, then Executive Vice-President of Petro-Canada, skirted the issue of "national purpose" and said:

> The case for our being [in refining and marketing] is largely, I think, in the kind of window-on-the-industry function that at least we know something about that end of the business. It has been an area that has been of periodic concern with its competitiveness and trade practices and what not. . . . the cash flow argument for being in a business where profits are currently made in order to support investment in our new activity, would apply as well to the downstream.[104]

In his testimony before the committee, Marc Lalonde reprised the same themes and suggested that the findings of the Bertrand Report on the state of competition in the Canadian petroleum industry (Canada, Director of Investigation and Research, Combines Investigation Act 1981) had increased the argument in favour of the "window-on-the-industry" aspect of Petro-Canada's mandate, especially in the downstream sectors.[105] This may well have been the case but we would like to point out that the Bertrand Report is dated 17 February 1981, and had thus been preceded by Petro-Canada's bid for Husky, its acquisition of Pacific and the negotiations and conclusion of the Petrofina Canada deal.

In any case, when the *Petro-Canada Act*, in its Bill C-8 version, had been examined by the Standing Committee on National Resources and Public Works, the "window-on-the-industry" aspect of the company's mandate had been presented as being relevant to upstream activities only. Based on the above observations, we advance the following proposition. The "window-on-the-industry" role assigned to Petro-Canada is not included in the statement of objects, powers and duties in the *Petro-Canada Act* and consequently has always been ill-defined. This gives rise to the possibility that this ambiguity can be exploited, especially by the firm, to rationalize a number of changes in the scope of Petro-Canada's activities, all based on a "need to increase our knowledge" argument. Given that, we would argue that the "window" aspect of Petro-Canada's activities should be considered a by-product (or, in some cases, a joint product) of its mandated functions and not, in itself, a justification for determining the extent of its involvement in the oil and gas industry. Even if there had been a perceived need to widen the scope of Petro-Canada's mandate in terms of a window on downstream activities, Wilbert Hopper, has recently suggested that the federal government rarely uses it as such:

> [The window-on-the-industry function of Petro-Canada] is not used widely. A good deal depends – to be practical about it – on how the Department of Energy, Mines and Resources or other departments wish to seek the advice of the corporation or how the Minister [of Energy, Mines and Resources] feels about the corporation. I cannot say that it is used widely.[106]

In any case, we feel that, in terms of the public-policy role of the Crown corporation's downstream activities, a statement made by Hopper best reflects the government's and Petro-Canada's views:

> In many discussions we have had with the government, our refining and marketing activity has not been seen as an instrument of national policy, but as a commercial activity carried on by the corporation in a competitive climate in order to provide cash flow for our mainline operation of exploration.[107]

Some support for the notion that there is no identifiable public-policy role served by Petro-Canada in downstream activities also arises from a report that Donald Macdonald and Alastair Gillespie, two of the federal ministers responsible for Petro-Canada during its early years, were opposed to its entry into refining and marketing precisely for that reason.[108]

If the Ministers were opposed, how was Petro-Canada allowed to enter refining and marketing activities? A statement by Hopper to the members of the Standing Committee on National Resources and Public Works after the corporation's acquisition of Pacific may shed some light on these considerations:

> . . . on the acquisition of refining and marketing, the way the process works currently is that if an opportunity came up to purchase [additional] refining and marketing assets. . . *management would determine* whether it was in the Corporation's interest, *or in the national interest*, to do so. That debate would be carried to the board of directors. If the board felt it was a viable investment and something we ought to undertake, we would put that capital expenditure requirement to the government.[109]

At this juncture, it will prove instructive to review some aspects of the BP Canada acquisition. Early in 1982, Petro-Canada began a process of negotiations which culminated with its acquisition of the downstream assets of BP Canada for aggregate financial considerations of about $425 million.[110] Almost 60 per cent of the cost of this transaction was financed internally by Petro-Canada.[111] The remaining portion of the necessary funds (approximately $165 million) was obtained through the issuance of long-term debt.[112] This move marked the first major takeover by Petro-Canada where no upstream assets were acquired in the process.[113]

In a subsequent appearance before a standing committee of the House of Commons, Jean Chrétien who had by then assumed the responsibilities of the federal Energy, Mines and Resources portfolio, echoed Hopper's words in his description of the process which resulted in Petro-Canada's acquisition of BP Canada's downstream assets:

> *When I was confronted* with the desire of BP to sell and the desire of Petro-Canada to buy, I looked at the proposition and I said to the Chairman of Petro-Canada . . . *that if this decision could be defended strictly on commercial terms he could do it*. And that is exactly what they have done . . . *the board of Petro-Canada* made a commercial decision.[114]

These statements as well as other arguments presented in this section raise an issue which is at heart of the role of Petro-Canada and its relationship with the federal government. From 1978 onward, has Petro-Canada assumed a number of tasks more likely to be associated with the *formulation* of government policy in the oil and gas sector rather than with its *execution*? We have previously expressed this concern on a number of occasions. We argue that the two statements quoted above at least suggest that this indeed may well be the case.

For example, back in 1976, Hopper had suggested that the fulfillment of two conditions (a good deal from the corporation's point of view and that it would serve a public-policy function) was necessary to justify any expansion of Petro-Canada into downstream activities. By the end of 1979, however, the fulfillment of either of these two conditions was now perceived as sufficient. In addition, it was suggested that the management of Petro-Canada could determine what measures were in the national interest. It should be remembered, however, that the federal government still ultimately holds the purse strings and that it has exercised its discretion to curb Petro-Canada's enthusiasm about certain projects (e.g., coal development).[115] But as Doern (1984, p. 66) argues, the advance time available to the federal government for the purpose of scrutinizing Petro-Canada's capital budget, in general, is very limited. We would argue that this time constraint also applies to the case of takeovers.[116] In addition, it is possible that the business of exploring Canada's frontiers was proving to be a more expensive task than the federal government had originally anticipated, and thus made the latter more receptive to the idea of allowing Petro-Canada to expand into cash-generating, downstream activities. However, we found no evidence suggesting that the federal government had reached this conclusion and encouraged Petro-Canada to acquire refining and marketing assets prior to the aborted Husky takeover attempt. Therefore, the developments outlined above suggest to us that the management of Petro-Canada saw as part of its role the initiation of (or, at least, the suggestion to initiate) public-policy measures, even when these were identifiable departures from established practices or outside the scope of the corporation's initial mandate.

There is no doubt that a solid argument in favour of such a development can be made on the basis that Petro-Canada is in an ideal position to fulfill the role of policy initiator since it is itself a player in the industry and thus can better perceive which policy actions are needed. Nonetheless, the determination of what consists the "national interest" is arguably outside the scope of the corporation's mandate and is a function which more appropriately rests with the federal government, and ultimately with Parliament.

Specific Examples of the Potential for Conflicts: Petro-Canada as Industry Participant and Purveyor of Information to the Government

The dual role of Petro-Canada as player in the industry and instrument of public policy is further complicated by the fact that the corporation also acts as a source of information/advice for the government in matters relating to energy policy. This introduces the potential for management personnel being caught between the corporation's best interests, and the design of government policy in the oil and gas sector.

Following the return of a majority Liberal government in the early months of 1980, a high priority was assigned to devising a new federal energy policy. It is well known that Petro-Canada officials had a significant input in charting the new policy.[117]

As we saw earlier, the federal government unveiled the NEP in October of the same year. Among some of its provisions were changes in the incentive systems for exploration and development activities. Prior to 1980, these incentives had operated through the income tax system, but now the federal government announced its decision to terminate this arrangement and to institute a system of cash grants. Through this system, the federal government would refund a portion of the exploration and development expenditures undertaken by companies. The refund rates considered, however, were not uniform: exploration activities commanded higher rates than development activities, frontier activities were subsidized at higher rates than activities in conventional areas were, and the refund rate was positively related to the degree of Canadian ownership and control of individual companies involved.[118]

All of these provisions seemed to indicate that the group of companies which the federal government was most willing to subsidize were those which were entirely Canadian-owned and -controlled, were involved in frontier exploration, and which would not have been in a fully taxable position under the previous policy regime. But this is also a description of Petro-Canada, since one of the aspects of its mandate which the corporation has aggressively pursued since its creation has been the exploration of Canada's geographical (and technological) frontiers. Thus Petro-Canada stood to benefit from these provisions of the federal energy policy initiative.

Another aspect of the NEP raises a similar type of issue, the federal policy aimed at ensuring that a 25 per cent interest in all future Canada Lands oil and gas developments would revert to the Crown. These provisions, however, were also to apply retroactively to most oil and gas discoveries on the Canada Lands.[119] Although the legislation made it clear that the recipient of such Crown interests would not necessarily be Petro-Canada, it was widely assumed by both government and industry officials that Petro-Canada would indeed be the recipient of most of these interests.[120]

Doern and Toner (1985, p. 54) described as follows the culmination of the process which led to the inclusion of the Crown interest provisions in the NEP:

> There was a mixture of bureaucratic and ministerial influence involved in the insertion of the 25 per cent Crown interest provision in the NEP. It was probably the most heatedly debated item in the NEP, and a decision on it was not taken until quite late in the game. The final choice belonged to Marc Lalonde, who made it explicitly and willing, *urged on by senior Petro-Canada officials* as well as some EMR officials.

In our opinion, a worrisome aspect of these arrangements is that Petro-Canada (or at least some of its employees) had a hand in the design of the government policy which contained elements that would be beneficial to the corporation.[121] We do not suggest that any impropriety has taken place, but simply wish to point out that the nature of Petro-Canada's role in the oil and gas industry places officials of the firm in a difficult position when trying to apply the "window-on-the-industry" function to the task of supplying government officials with information and advice of use in the policy design stage. Granted that the government is free to ignore or discount information and advice obtained from Petro-Canada. However, this would seem to cast some doubts on the usefulness of the exercise in general. Why would one wish to set up a Crown agent to act, in part, as a purveyor of information only to turn around and ignore the information so obtained?

The only set of circumstances under which this does not create a problem occurs when the corporation's perception

of its own interests is identical to the government's perception of the national interest in the relevant areas of concern. If, however, there exists a wedge between these two sets of notions, then the information conveyed by Petro-Canada will likely be more closely aligned with the corporation's perception of its own interests. Therefore, the design of government policy based on this information would likely incorporate elements which are more closely linked to Petro-Canada's best interests than to the national interest.

Activities and Capital Expenditures

To end the discussion with the previous subsection would have given an incomplete picture of Petro-Canada's activities during the period under consideration. Chart 2-1 shows that Petro-Canada continued to play an aggressive role in exploration efforts offshore from Canada's East coast. In 1978, the Crown firm became a member of the Labrador Group, a consortium active in exploration projects offshore from Labrador. Some time later, in 1980, Petro-Canada became the operator on behalf of the consortium, which partly explains that year's increase in Petro-Canada's well completions as operator evident in Chart 2-1. During the early 1980s, Petro-Canada also signed a number of exploration agreements with the federal government, which means that the Crown firm acted as operator for a number of wells drilled in the Eastern Canadian offshore region. That this accounted for a relatively important part of Petro-Canada's activities as an operator is perhaps best illustrated by the fact that the consequences of the Labrador Group's cancellation of its exploration program starting in 1984 are barely discernable in Chart 2-1. Throughout the 1978-84 period, Petro-Canada continued to be the company most actively involved in oil and gas exploration offshore from Canada's East coast.

The same story, however, does not apply in the Northern regions. As Chart 2-2 reveals, although Petro-Canada remained an active explorer during the third period of its history, its role in the North was relatively less important than on the East coast. This is especially true after 1981, when activity levels in and around the Beaufort Sea, areas where Petro-Canada was virtually inactive, rose substantially.

The information contained in Table 2-2 simply confirms what emerges from Charts 2-1 and 2-2: during the period under consideration, Petro-Canada remained a very active explorer of Canada's geographical frontiers. Furthermore, exploration and development activities outside Canada continued to account for a very small proportion of the Crown firm's capital expenditures.

During the 1978-84 period, more than 40 per cent of Petro-Canada's total direct capital expenditures were directed at frontier exploration activities. In these, as well as in a number of its other activities, Petro-Canada actively pursued a strategy of involvement in joint ventures, as was anticipated at the time of its formation. However, as Table 2-2 reveals, between 1978 and 1980 the Crown corporation spent more on exploration and development in Western Canada than in frontier exploration, a reversal of the situation prevailing in previous years. The introduction of petroleum incentive payments[122] is coincidental with a strong resurgence of activity by Petro-Canada in the exploration of Canada's geographical frontiers. Once the cash grants have been taken into consideration, the importance of frontier activities falls substantially as a proportion of net capital expenditures over the relevant years.[123] In fact, as reported in Doern and Toner (1985, pp. 379-383 and Table 10.2, p. 384), Petro-Canada has been one of the greatest beneficiaries of these cash grants.[124] The Crown corporation cannot be faulted for taking advantage of this turn of events but, as we noted earlier, the worrisome aspect in all this is that Petro-Canada officials were involved at the ground floor of the process from which emanated the NEP and specifically, the replacement of a tax-based system of exploration incentives by petroleum incentive payments.

It should also be noted that the relative importance of oilsands research and development, as a source of capital expenditures for the Crown corporation, has consistently been lower in the 1979-84 period than it was in 1976-78. This is due, at least in part, to the fact than Syncrude started operations and became a net contributor to Petro-Canada's cash flow in 1979. Table 2-2 also shows that capital expenditures on downstream activities, non-existent prior to 1978, accounted for about 12 per cent of total capital expenditures over the relevant period.

Between 1978 and 1984, Petro-Canada was also involved in a number of proposals for projects at the technological frontier of the oil and gas industry. Although a few of these projects had been under consideration prior to 1978 (e.g., Arctic Pilot Project, Polar Gas Project and the Alsands oilsands plant), a number of them were first proposed after the unsuccessful Husky takeover bid and the Pacific acquisition. Examples of such projects include the Canstar oilsands plant, the Carmont heavy oil upgrader complex, the commercialization of the CANMET hydrocraking process and the expansion of the Wolf Lake bitumen recovery project. The increase in the federal tax burden on the industry caused by the NEP, unfavourable decisions on the part of some regulatory agencies the growing realization that (real) oil prices would not likely rise rapidly over the near to medium term resulted in the cancellation or the

indefinite deferral by Petro-Canada and other participants of a large number of these projects. Of the projects listed above, only two proceeded beyond the design stage: the CANMET commercialization and the Wolf Lake expansion. As will be discussed in Chapter 5, Petro-Canada undertook the CANMET project only after receiving a written directive to do so from the federal government. The Wolf Lake expansion, undertaken in conjunction with BP Canada in 1983, proceeded only after royalty and tax concessions had been obtained from the federal and Alberta governments.[125]

Prior to 1982, Petro-Canada's record shows strong support for projects at the frontier of oil and gas technology, consistent with the Crown firm's original mandate. Starting in that year, however, a number of exogenous factors which negatively affected the economics of such projects, combined with announced reductions in planned government injections of equity funds into Petro-Canada[126] led the Crown firm to reassess its commitment to exploring the technological frontier.

Soon thereafter, Petro-Canada announced a change in its overall corporate policy which effectively de-emphasized the type of high-risk, long-lead-time frontier projects that the Crown firm had aggressively pursued prior to 1982:

> Corporate priorities were refocussed to emphasize a better balance between shorter-term cash generating activities and higher risk, longer-term projects.
>
> Frontier exploration efforts now emphasize the earliest and most promising oil opportunities to achieve commercial production. . . .
>
> Capital expenditure priorities were re-examined and directed toward projects offering early cash flow enhancement and reduced cost.[127]

This announced change in corporate policy was subsequently reflected in Petro-Canada's behaviour: no high-risk, long-lead-time projects were announced in 1983 or 1984 (nor, for that matter were any proposed in 1985 and 1986).[128] This heightened concern about "bottom-line" performance meant that Petro-Canada was moving closer to operating like any private-sector oil and gas firm, while moving away from some types of activities that the federal government had specifically identified as appropriate for an NPC to undertake when the establishment of a Canadian NPC was discussed and effected between 1973 and 1975.

During this period, Petro-Canada (in conjunction with the federal government) negotiated and signed its first and only significant deal as a Crown agent involved in state-to-state transactions aimed at securing crude oil imports for Canada.[129] Agreement was reached with Pemex and Mexican authorities so that the Mexican NPC would provide Petro-Canada with up to 100,000 barrels per day of crude oil for Canadian consumption. Almost from the day it was signed, this agreement proved problematic because a significant portion of the contracted crude volumes was basically in excess of net Canadian demands for imported oil. It was now much easier for private-sector firms to purchase crude oil on world markets than it had been in the days of the 1973 Arab oil embargo and the first OPEC oil price shock. Consequentially, the relative importance of state-to-state transactions for importing countries like Canada decreased substantially (or, more accurately, never reached the heights anticipated in 1973-74). Before the end of the period under consideration, the contract with Pemex had been modified to provide for much smaller volume purchases by Petro-Canada.[130]

Although some Petro-Canada officials have argued that state-to-state transactions occurred with the Venezuelan NPC,[131] negotiations for a long-term arrangement broke down before an agreement had been reached.[132] Petro-Canada's relatively small degree of involvement in this aspect of its original mandate does not appear to be the result of the Crown firm's unwillingness to pursue related opportunities. Rather, as we suggested earlier, the fact that early-1970s expectations of continued difficulties for private-sector firms of securing crude oil supplies from Middle Eastern and Latin American sources were subsequently not realized most likely had much more to do with the reduction in the importance of state-to-state oil import deals for Canada, and thus for Petro-Canada.

Based on the developments reviewed above, we suggest that this stage of Petro-Canada's development witnessed not only a change in the mix of activities undertaken by the corporation, but also a departure from the set of activities which had been emphasized by the federal government in power at the time of the creation of Petro-Canada. The entry into refining and marketing, and the perceived changes in the orientation of the corporation's upstream activities are two outstanding examples of such developments.

The Fourth Stage: From 1984

In retrospect, Petro-Canada's movement away from a general public-policy role had been discernable since at least March 1984, when the Crown firm released its *Annual Report* for 1983. As we pointed out earlier, the Crown firm

had then announced its intention to cut back its involvement in frontier-type projects, primarily for cash-generation and other profitability-related reasons. Soon after its election in September 1984, the majority Progressive-Conservative federal government not only sanctioned Petro-Canada's March 1984 announcement, but took it a considerable step further. The Crown firm was given a new mandate by its parent government, that of operating in a fundamentally commercial manner:

> Petro-Canada is not to be perceived in the future as an instrument in the pursuit of the [federal] [g]overnment's policy objectives. However, the government maintains the right as the [sole] shareholder to formally direct [sic] Petro-Canada to carry out certain activities in the national interest.[133]

It appears to us that this change in Petro-Canada's mandate represents the latest in a chain of events that began with Petro-Canada's unsuccessful attempt to acquire Husky Oil in 1978. As documented in the previous section, the Crown firm's behaviour has since then been increasingly influenced by "bottom-line" considerations. In other words, Petro-Canada's corporate strategy has progressively shifted towards that of private-sector firms. Basically, the change in mandate legitimizes this process, and further relieves Petro-Canada management of the responsibility to take the government's policy objectives into consideration when developing the corporation's overall strategy.

If this is an accurate interpretation of the new mandate, then only when the federal government issues directives to undertake specific activities will the "national interest" come into play in determining Petro-Canada's behaviour. Although this will likely result in an effective reduction of the Crown firm's public-policy role, it also means that management will no longer be able to characterize activities undertaken at its discretion (or instigation) as being in the national interest. The determination of what constitutes the national interest in these areas would now revert to the federal government, and ultimately to Parliament. Far from being self-contradictory,[134] we see the new arrangements as clarifying the ultimate source of responsibility for decisions concerning specific activities undertaken by the corporation.

One of the key unresolved issues under these new arrangements concerns Petro-Canada's "window-on-the-industry" function. Since the Crown firm is now mandated to operate even more like a "representative" industry player, it would appear to us that the potential for conflicts of the types described earlier has increased.

Early evidence suggests that the relationship between Petro-Canada and its parent government ushered in by the new mandate may not, in fact, be symmetric. There have been a number of reports that the federal Cabinet intervened in Petro-Canada's plans to acquire some of the assets of Gulf Canada, early in 1985.[135] A complicated deal had been in the offing by which Olympia & York Developments, a Canadian-owned company, would acquire the 60 per cent of Gulf Canada earlier picked up by Chevron Corporation, a U.S.-owned firm, as a result of its purchase of Gulf Canada's U.S.-based corporate parent. Petro-Canada would then acquire Gulf Canada's downstream assets and some of its upstream assets from Olympia & York. At the last moment, the federal Cabinet withdrew its support of Petro-Canada's proposed course of action, and the entire deal collapsed.

Neither when initially approving, nor when subsequently withdrawing its support for the proposed Petro-Canada acquisition did the federal Cabinet issue a written directive. This is what leads us to argue that the new arrangements may not be symmetric. In this case, the federal government intervened in what was fundamentally a commercial decision for Petro-Canada without resorting to the use of a written directive. If, however, Petro-Canada is to be made to undertake an activity deemed in the national interest, then the provisions of the new mandate would require that a directive be issued. It is too early to tell whether or how this apparent asymmetry will be resolved.

In any case, the federal Cabinet later allowed Petro-Canada to acquire Gulf Canada's downstream assets to the west of Quebec, and the Olympia & York deal was resurrected. The overall cost to Petro-Canada of this acquisition reached about $1 billion, which was financed partly internally, and partly through conventional borrowing channels.[136] No direct infusion of public funds was procured.[137]

As far as upstream activities are concerned, by the end of 1985 Petro-Canada had further reduced the relative importance of frontier exploration by sharply reducing its oil and gas landholdings in these areas. Over a two-year period beginning at the end of 1983, the corporation's gross frontier landholdings fell by almost 40 per cent (from 54.4 to 33.0 million hectares), while its net landholdings were reduced by more than 30 per cent (from 25.0 to 16.4 million hectares). These compare with reductions in gross and net conventional landholdings of about 20 per cent over the same period.[138]

Although Table 2-2 shows a decrease in the relative size of capital expenditures in frontier areas over the same time period, Charts 2-1 and 2-2 do not reveal a commensurate

decline in the number of frontier well completions in which Petro-Canada participated. Apart from the obvious time lag between spudding and completion dates, there is another important factor that contributes to the observed upward trend in completions. During the campaign leading to the September 1984 federal election, the Progressive Conservatives had promised, if elected, to revamp Canada's frontier exploration and development incentive system, and to eliminate the 25 per cent Crown back-in provision.[139] With the imminent demise of the cash-based system and its replacement by a system that would likely be less generous for activities in frontier areas, an incentive was thus created for companies active in these areas to complete existing exploration programs in time to take advantage of the cash grants available under the "old" rules. That other companies, and not only Petro-Canada, expected this type of change in federal policy towards frontier activities and reacted similarly is clear from Charts 2-1 and 2-2.[140]

On 30 October 1985, the federal government announced a new frontier energy policy. As promised during the 1984 election campaign, the new policy elimimated the 25 per cent Crown back-in, and replaced the cash-grant incentive system with one based on royalty and tax credits.[141] In particular, the new system does not provide for credit rates that vary according to the degree of Canadian ownership and control of the firm undertaking frontier acitivites. This new frontier energy policy thus effectively treats Petro-Canada like any private-sector firm.

Although there is no evidence to suggest that these two policy moves (Petro-Canada's new mandate and the new frontier energy policy) were explicitly linked, it would appear to us that to have basic rules of the game which treat all participants in the same way is consistent with the federal government's announced intention to have Petro-Canada operate in a fundamentally commercial fashion, subject to national-interest overrides in the form of specific directives. If the policy regime were to treat Petro-Canada differently than other firms, then the economic incentive system facing the Crown corporation would not be the same as that facing other firms in the industry. As a result, Petro-Canada's economically rational behaviour would differ from that of private-sector firms, even in the absence of specific directives from its sole shareholder.

Further evidence that Petro-Canada intended to orient its activities in directions more similar to private-sector firms came with the release of the corporation's *Annual Report* for 1985. With its general public-policy role stripped away by the new mandate, Petro-Canada responded to the late-1985/early-1986 fall in world oil prices by writing down the asset value of a number of high-risk, long-lead-time projects. As a result, more than $750 million of unusual items were charged against the corporation's earnings for 1985.[142] While write downs of the asset value of other Petro-Canada activities were also registered during that year, more than 85 per cent of the total amount of unusual charges were accounted for by the types of project that the Crown firm's pre-1984 mandate had specifically encouraged it to pursue.

The change in mandate and the ongoing reorientation of Petro-Canada towards more commercially viable lines of activity has generated little public debate. Some time after the change in ownership of Gulf Canada, the possibility of undertaking a study of Petro-Canada's mandate and its role in the marketplace was raised in the deliberations of the Standing Committee on National Resources and Public Works.[143] More than two years later, however, the proposed study had still not been initiated.

Since the official change in the Crown firm's mandate, an issue has often been raised in public discussions about the future of Petro-Canada: whether the federal government should reduce its equity position and sell shares to the public.[144] At the time of writing, this issue had still not been resolved. However, it seems clear that the reorientation of Petro-Canada's activities has made it more attractive to potential investors. On the other hand, the recent fall in world oil prices and its impact on the share prices of all oil and gas companies have made divestment a politically more difficult decision for the federal government to take.

Nonetheless, the possibility of a public issue of Petro-Canada stock raises important questions. If the government were to retain only a minority interest (or, in the limit, to sell all of its interest) in the corporation, then it would effectively forego the ability to direct Petro-Canada to undertake projects deemed (by the government) to be in the national interest. A good example of the limited control over the activities of a mixed enterprise that can be exercised by a government holding a minority ownership position is the case of British Petroleum (BP) during the mid-1970s. At that time, the British government owned about 47 per cent of BP, but the latter considered its obligation to the former to be "purely a financial one."[145]

The government choosing to retain a majority ownership position in Petro-Canada can also give rise to some difficult questions, partly because this type of implicit contract cannot be made to bind the actions of subsequent governments. For example, it is possible that the government initiating the sale to the public of a minority interest in Petro-Canada would decide to retain and exercise its powers of direction over the corporation's activities, and then for a

subsequent government to choose to forego these powers, either as a result of a change in policy within the same ownership structure, or due to a further divestment which would leave the Crown with minority ownership of the firm. Basically, the stock market would take this type of fundamental uncertainty (in the Keynes/Knight sense) into consideration when determining the price of Petro-Canada stock. In our opinion, this creates the potential for unintended transfers of wealth between Canadian taxpayers and private holders of Petro-Canada stock. From the perspective developed in this chapter, the decision to proceed with a public issue of Petro-Canada stock would mark the beginning of a fifth period in Petro-Canada's history.

Conclusion

In the previous four sections, we have used historical evidence to show that the notion of direct state participation in the Canadian oil and gas industry had met with the approval of a Liberal federal government a number of years prior to its minority days and the establishment of Petro-Canada. What has changed over the years, however, is the government's perception of the role of an NPC. In the days of the Home Oil controversy and the 1973 EMR report, an NPC was perceived primarily as a means of increasing the level of Canadian ownership and control in the domestic oil and gas industry. We have suggested that this implied a greater concern about distributional issues on the part of the government.

However, the announcement of the government's intention to create a national petroleum company in December 1973, we argued, suggested a different perception of the state's role in the oil and gas industry. An attempt was made to forge closer ties with public-policy goals in this area and issues related to resource (here used in its generic sense) allocation.

Petro-Canada emerged from this process as a policy instrument/state player in the Canadian non-renewable energy stakes. Although the corporation's objects, duties and powers, as described in its constituent *Act*, were broadly defined, they had clearly been influenced by the government's declared intentions. We have argued that statements made by high-ranking government officials during the public debate which preceded the creation of Petro-Canada lend support to this contention.

And so it was during the Crown corporation's first few years of operation. In the period extending from 1976 to early 1978, Petro-Canada seems to have put a high priority on becoming a vigorous player in the oil and gas industry, while at the same time limiting its involvement to areas where the government had clearly identified a public-policy purpose to be served by direct state participation. Although evidence on the degree of control exercised by the federal government is scanty, the end product was nonetheless that the activities of Petro-Canada for the most part conformed to the corporation's role as described in government pronouncements since December 1973.

From our perspective, the important change in the corporation's orientation which occurred in 1978 raises two kinds of issues. First are questions related to the government's perception of Petro-Canada's role, and second are issues concerning the nature of the corporation's role and the latitude exercised by the latter in defining its objectives and the scope of its activities. These two sets of questions are linked to the nature of the relationship between the Crown corporation and its parent government.

Although evidence on this account is mixed and, as we have shown, the pronouncements of high-ranking officials have at times been contradictory, the developments that have occurred since 1978 seem to have been accompanied by a change in the government's perception of the role of Petro-Canada.[146] The entry into refining and marketing is the most visible sign of the change in the corporation's status within the oil and gas industry. The puzzle to attempt is the following: did the change in the government's perception of Petro-Canada's role precede and thus facilitate the corporation's entry into refining and marketing, or did the first move originate with Petro-Canada, or, finally, are the two sets of events unrelated?

Based on the evidence reviewed, we have suggested that the most likely explanation centres around Petro-Canada's expressed desire to become more sensitive to its "bottom line" and to take steps in that direction. The public support for the "new" fully integrated Petro-Canada is likely to have procured the needed political support, which was demonstrated by the government's willingness to allow the Crown corporation to acquire a much stronger downstream presence as the years passed.

The late-1984 change in Petro-Canada's official mandate, it was argued, essentially acted to legitimize the reorientation of the Crown firm's activities that had begun as early as 1978. The elimination of Petro-Canada's general public-policy role sharply reduces the potential for and the significance of conflicts between the corporation's best interest and the national interest. However, if the Crown firm *qua* representative market player is then allowed to

influence the formulation of public policy in the area where it is active, the objectivity desirable for the formulation of policy will be lost, and the process will be systematically biased in the direction of the Crown corporation's own interests.

The above is a worrisome aspect of the "window-on-the-industry" notion. As we have argued, the fact that this notion is ill-defined makes it potentially all-encompassing. In addition, this ambiguity can be used strategically by Petro-Canada in the pursuit of its own objectives. The issues of concern here are not whether the information obtained by the federal government through the operation of Petro-Canada is in any way distorted because of the effects of some legislative provisions which give the Crown corporation an advantage over its private-sector competitors, but whether its special relationship with the government can be used to secure such advantages and whether this is desirable from a broader public-policy perspective.

Most of the issues that were discussed in this section have to do with the nature of the relationship between Petro-Canada and the federal government, and specifically with the extent of the latter's control over the former's activities. It has elsewhere been argued that in the pursuit of certain public-policy goals, public ownership is a less open, more flexible and more selective instrument than are other forms of intervention.[147] One of the key areas of concern in this study is that this description may be incomplete, at least as it applies to Petro-Canada – public ownership can also be more difficult for the government to control.

3 The Expected Impact of Petro-Canada's Formation and Growth on the Share Prices of Firms in the Canadian Oil and Gas Industry

Introduction

As suggested in the previous chapter, the formation of Petro-Canada was predicated on several major premises; among them, the promotion of national security, the development of energy supply, and the necessity to have a yardstick competitor in the industry to provide information regarding the costs of exploration for and production of oil and gas. Some of this information could be obtained through mandatory information provision to the government. Such disclosure legislation is now in force in Canada through the Petroleum Monitoring Agency and hence the need for a yardstick competitor is reduced or eliminated.[1]

All of these objectives would have an impact on the operations and hence the profitability of existing firms in the Canadian oil and gas industry. Studying the impact of the formation and growth of Petro-Canada on the share prices of existing companies in the industry provides an indication of investors' expectations concerning the influence of these events.The purpose of this section is not to question whether alternative and perhaps more efficient policy instruments could have been used to achieve the desired result, but to evaluate the private-sector reaction to both the establishment of Petro-Canada and subsequent corporate events involving Petro-Canada (primarily its acquisitions). These events may have provided the private sector with either new information on the role of Petro-Canada as an instrument of government policy, or information which cleared up confusion surrounding this role.

The indicator of private-sector reaction considered here is the "unexpected" change in the stock price of the companies in the oil and gas industry measured over a time period (called the event period) during which the particular event being studied occurred.[2] Research on securities markets in both Canada and the United States has demonstrated that stock prices reflect publicly available information rapidly and in an unbiased manner (i.e., on average neither under nor overestimating the value of that information). Since stock prices incorporate investors' expectations of future cash flows, unexpected changes in these cash flows due either to firm-specific events or industry events, such as the formation of Petro-Canada or its acquisitions, will be reflected in stock prices. Analyses undertaken by the federal government of the efficacy of an NPC, the manifestation of this NPC as Petro-Canada with its stated mandate, and Petro-Canada's subsequent acquisitions both aborted and successful are all events which provided information to the financial markets and to the other players in the oil and gas industry concerning the intentions of the Canadian NPC. The size and direction of the unexpected stock price change will reflect investors' expectations of the severity of the events on corporate cash flows.

Expectations of future cash flows are crucial to investors' determinations of stock prices. However, the expected change in these cash flows as a result of Petro-Canada's actions are ambiguous; arguments have been presented that justify either an increase or decrease in industry cash flows due to the formation of Petro-Canada.[3] To complicate the issue further, in those instances where there is, say, an unambiguous decrease in expected cash flows, a number of arguments can account for this result.[4]

Given that there are a number of competing hypotheses, our purpose will be limited to identifying the magnitude and direction of the impact. This will determine at a minimum, investors' interpretation of the events. In those cases where it is justified, the reason for the impact will be identified.

A final *caveat* is necessary in interpreting the results presented in this chapter. Share prices reflect not only the impact of information but also expectations of future events based on this information. Hence it is possible that there may be no stock price reaction during a particular event period since the event (or the information in the event) had already been anticipated. Moreover, a number of "events" may take place at approximately the same time making the analysis of the impact of a single event difficult. Therefore, care must be taken in evaluating the results of the empirical analysis.

The remainder of this chapter is organized as follows: the arguments underlying the formation of Petro-Canada and their influence on expected cash flows are presented on p. 34; a general discussion of the methodology employed is presented on p. 35, with the technical discussion to be found in Appendix B; the empirical results are presented on p. 37 and the conclusions on p. 49.

Expected Cash-Flow Implications for the Oil and Gas Industry of the Formation of Petro-Canada

In this section the arguments used for the establishment of a Canadian NPC are reviewed and their implications on the expected cash flows of the industry are presented. The rationales considered first are specific to the formation of Petro-Canada whereas the subsequent rationales have been used to explain the establishment of Crown corporations in general.

As was argued in Chapter 2, one justification for the creation of Petro-Canada, was the federal government's perceived need to enhance Canada's security of energy supply by ensuring the discovery and development of long-term Canadian oil resources by undertaking high-risk exploration and research. It was felt that the existing participants in the industry did not undertake these projects either because their expected returns did not compensate for the risk or because there were imperfections in capital markets–namely a scarcity of capital. Given that the situations in which Petro-Canada is instructed to act are highly speculative and at the frontiers of the petroleum industry's efforts, it is unlikely that Petro-Canada's presence would usurp good investment opportunities. Unless it is anticipated by investors that Petro-Canada would stray beyond this mandate, the security of supply notion per se should have little or no expected impact on the profitability of existing firms and hence would not affect their stock prices.[5]

However, there are two scenarios that could exist which would impact expected cash flows. The first suggests a negative impact through a form of the "thin edge of the wedge" argument; there is no guarantee that the NPC would not undertake subsequent activities that would be detrimental to existing companies in the industry. An example of this behaviour is the province of Saskatchewan's foray into the potash industry. The initial entry was the imposition of a reserve tax; this led ultimately to the establishment of a provincial Crown corporation which became a significant player in the potash market.[6] Along these lines, the formation of Petro-Canada signalled a reduction in expected cash flows for the industry as a result of either the provision to the federal government of information to which it was not privy prior to that time or the direct competition of a new entrant. This interpretation indicates that security prices of companies in the industry should fall. Whether the impact differed among the two major segments in the industry – oil and gas producers and integrated oils – will be investigated.

Another argument presented by Doern and Toner (1985, pp. 151-152) suggests that private firms wanted to have NPC involved in frontier exploration and non-conventional developments as a minority participant in syndicates of private companies. This participation could have a number of beneficial impacts to the industry; these include government assistance to ensure viability of the projects, a speedy completion, indirect access to the state's pool of capital and preferential treatment of the industry in legal and taxation matters. The last argument is a type of "capture" of the Crown corporations by the industry. If it is assumed that a Crown corporation competing in an industry will behave so as to protect the financial interests of the existing participants, the sequence of events in the formation of Petro-Canada would be viewed by investors as being favourable to the oil and gas industry and would be reflected in increased stock prices for existing companies. There is no evidence to indicate that this would be the intended position of Petro-Canada. However, one cannot reject the possibility that the presence of Petro-Canada would reduce the financial risk (and hence the cost of capital) for firms involved in joint ventures with the Crown corporation.[7]

A frequently used justification for the formation of a Crown corporation is its use as a "yardstick" competitor; this would be expected to have a negative impact on the expected cash flows of the participants in the industry. Harrison (1979) identifies three versions of the objective of the yardstick competitor as created through public enterprise. The first is to provide *information* on prices and performance of private firms to permit the government to monitor the activities of this sector more effectively. This version views the operations of the public firm not as a competitor but as an operating standard. The second version requires the public enterprise to be used as a direct competitor with the objective of preventing collusion and keeping prices competitive. The final version views the public enterprise as a form of *potential competition*; the threat of entry by the Crown corporation would be sufficient to discourage anti-competitive behaviour in certain submarkets.

The information version of this "yardstick competitor" would be very difficult to implement for a number of reasons. First, one purpose of Petro-Canada was to undertake projects which were of questionable commercial viability, but were perceived to have important social benefits. If Petro-Canada were successful in its quest for projects with significant social benefits, its cost structure, input mix and profits would be different from a company which was interested solely in private benefits.[8] Thus, the use of Petro-Canada as an *operating standard* would be inappropriate. However, the "operating standard" version of the yardstick competitor has evolved to the use of Petro-Canada as a "window on the industry." The purpose is no longer to

obtain exact cost data but to provide expertise to the federal government, help it interpret industry trends and activities and provide specific information on projects which Petro-Canada undertakes, either on its own or in conjunction with private firms. Therefore, whether the first version of the yardstick competitor is interpreted narrowly as the operating standard or more broadly as the "window on the industry," the intended goal is to place the federal government in a better position to bargain with the industry and, if necessary, to regulate it.

In our subsequent discussion, we use the term "yardstick" competitor to incorporate all three versions of the yardstick competitor, as described above.

In order to evaluate the impact of the intervention, points in time must be identified when information about the intentions of Petro-Canada as an agent of the federal government became available to the public. One method of identifying these important events is to consider the four phases of Petro-Canada's history identified in Chapter 2 of this study. We will concentrate on two of these phases. First is the formation of Petro-Canada and its growth into a major player in the drilling and production areas; the second is its intention to take a major position in downstream activities and non-Canadian properties; this intention was signalled by the aborted takeover of Husky in 1978.

For the first phase, the obvious candidate for the information event date is the date when the federal government's intention to establish an NPC was made explicit. A second event to analyze is the ARCAN acquisition. That acquisition should provide information to the financial markets concerning the growth possibilities of Petro-Canada in upstream activities. To the extent that this growth was anticipated through the announcement of the formation of Petro-Canada, there should be no additional impact on the security prices of firms in the oil and gas industry from the ARCAN acquisition.

In 1978, a signal of Petro-Canada's desire to move into downstream activities was provided by the attempted acquisition of Husky and the subsequent acquisitions of Pacific, Petrofina Canada and the refining and marketing assets of BP Canada. To the extent that this movement into downstream activities was unanticipated, there should be an impact on security prices. However, it is possible that the Husky attempted takeover provided no new information to the financial markets concerning Petro-Canada's intentions and the subsequent takeovers provided no new information.

To allow for the possibility that the various sectors of the oil and gas industry were affected differently, the analysis will consider the impacts of these events on the (upstream) oil and gas producers separate from the integrated oil companies.

Methodology

In this section, we provide brief descriptions of the two methodologies used to analyze the impacts of events in the formation and growth of Petro-Canada: residual analysis and the comparison-period-returns approach. A more technical discussion can be found in Appendix B.

General Approach

Each information event is considered separately in order to determine the impact of the specific event on the rate of return of two portfolios of securities in the oil and gas industry; one portfolio is the oil and gas producers index and the other, the integrated oil index. To measure the impact of this event on these portfolios there must be a benchmark or comparison which is unaffected by the event.

The days (or weeks) surrounding an event are broken into two periods. The first is "the event period" which includes the event under consideration and is centred at the date of the first public announcement of the event. The second is "the estimation period" and provides the benchmark. This period is chosen so that it is free of the direct impact of the event and free of anticipations of the event and its implications. The methodology compares the rate of return on common equity over the event period to the rate of return over the benchmark period. The specific methodologies employed provide different ways of measuring the benchmark and different underlying assumptions concerning how security rates of return are generated. The securities used are the Toronto Stock Exchange (hereafter, TSE) indexes for oil and gas producers and integrated oils.

If the estimation period does not remove the impacts of the specific event, it will not provide a good benchmark and the interpretation of the results is marred. This may be a serious problem in the application of this methodology to Petro-Canada since there were a number of information events occurring, some simultaneously, throughout the sample periods and it was impossible to eliminate their impact completely. In addition, during an event period, events other than those associated with Petro-Canada may have affected the oil and gas industry and thereby contaminate the results.

However, it is our position that even with these potential shortcomings the methodology is the best available to examine quantitatively the impact of the formation and growth of Petro-Canada on the domestic oil and gas industry.

Residual Analysis

Technique

Residual analysis was first used in a paper by Fama, Fisher, Jensen and Roll (FFJR) (1969) which evaluated the impact of stock splits on security prices; the technique in one or other of its variations has subsequently been widely used in finance and economics.

The methodology assumes that there is a particular process that generates rates of return on a security over a particular period – day, week or month. The rate-of-return generating process suggests that rates of return on a particular security (or on a portfolio of securities such as a TSE subindex) depend upon general market movements and a residual or firm (or portfolio) specific effect. It is the latter effect, often referred to as a residual effect, that is of interest in this study since it would reflect the impact of information that affects the firms in the oil and gas industry.

The parameters of the rate-of-return generating process are estimated using data in the estimation period. The actual rate of return on the specific TSE index over the daily (or weekly) holding period during the event period is then compared to the benchmark rate of return earned over the estimation period. The latter return is the rate of return that would have existed if there were no unusual event.

For example, consider the rate of return on the oil and gas producers index measured over a particular day, t^*, in the event period. Let this rate of return be written as R_{it^*}. The benchmark return is written as $E(R_{it^*}. \ , .)$ where $E(\ \ )$ is the rate of return expected to prevail for this index over day t^* conditional on the parameters of the return generating process. These parameters are left unspecified and are shown as dots within the brackets.[9]

The impact of the specific event over the holding period is defined as: $\hat{u}_{it} = R_{it^*} - E(R_{it^*}. \ , . \ , .)$ where $\hat{u}_{it^*}$ is called the measured residual over period t^*.

In this approach, time is measured relative to the actual event date. Thus the date on which information is first available to the market is defined as $t = 0$. The date –1 is one day (or week) prior to the announcement and +1 is one day (or week) following the announcement. The event period itself is identified as $t = -k \ldots, 0, \ldots + k$ where k is the number of periods surrounding the announcement date.

Caveats

The residual technique is used to its full potential when there is a well-specified hypothesis based on theoretical underpinnings. For example, many of the residual studies investigate the efficiency of the capital market by measuring the impact on rates of return of changes in financial-statement presentations that have no cash-flow implications (e.g., use of different forms of depreciation techniques for reporting purposes, but not for tax purposes). In such cases, the hypothesis would be that capital markets are efficient so that there should be no abnormal security price performance at the time of the announcement of the accounting change.

Another use of residual analysis is the measurement of the impact on security prices of certain unique events such as a merger or a major lawsuit. In the merger example, there is no "theory" but only the question of which of the participants gains and by how much. This is simply a measurement issue. Of course, with a well-conceived theory of mergers, hypothesis testing can be undertaken.

Since there is some expectation of the direction of the impact of the formation of Petro-Canada on security prices in the oil and gas industry, this event falls into the first category. The investigation of the impact of the various takeovers by Petro-Canada falls into the second class since a priori theoretical positions are harder to specify. In this latter type of analysis, researchers tend to get carried away in their rationalization of observed residuals. Although this ad hoc theorizing is intriguing, the lack of any reasonable underlying theory should make us view such exercises with some skepticism.

Another problem that arises is the identification of the appropriate portfolio of integrated oils during the event period surrounding Petro-Canada takeovers. In a takeover, the acquiring company usually pays a premium to the target company. This premium is reflected as an increase in the stock price of the acquired company. In looking at a particular event, the impact on the index of the event itself should be separated from the impact of the price paid to the target firm. Since the target firm is included in the integrated oils index, there can be a problem. Where possible (and appropriate), the target firm has been removed from the integrated oils index in both the event and estimation periods.[10]

The final problem concerns the measurement of the TSE index in determining the normal relationship of the portfolios and the market. The oil and gas index is composed of both the integrated oils and oil and gas producers index; it is a major component of the overall market index as measured by the TSE. Therefore, to avoid any possible biases, the total oil and gas index was removed from the TSE index and the remaining index (called the adjusted TSE index) was used as a measure of the market index.[11]

Comparison-Period-Returns Approach

Under residual analysis, the parameters of the return generating process have to be estimated and the assumption of stationarity of these parameters in the event period is required. An alternative specification (called the "comparison-period-returns" approach) does not postulate a specific rate-of-return generating process (such as the market model) but assumes that whatever the underlying process, a good estimate of its mean value and standard deviation can be obtained from the sample returns during the estimation period. If the event is of sufficient importance, the observed sample mean rate of return over the event period should be significantly different from the value in the estimation period.[12] This procedure leads to the use of a t-test for the difference of two means.[13]

A Final Note

Both methods described above require the separation of the total sample period into an estimation period and an event period. Underlying this separation is the identification of the actual event date. If the date chosen is subsequent to the initial investor awareness of the event, then the stock market will have already reflected the event's impact and the tests may show no impact when in fact the use of the correct event date may have shown that there indeed had been an impact. Most researchers agree that the identification of the event date and the time boundaries of the event period are crucial in the application of these methodologies. In our applications, we look to the first of the announcements of events in the public press. This, unfortunately, does not guarantee that "leaks" of the announcements did not occur before the announcement date.

The period since 1973 has been extremely active in the oil and gas industry. A chronology of major energy policies and events prepared by Doern and Toner (1985, Appendix I) identifies 108 such events over the period 1973 to 1982. A large number occur in the years 1973, 1974 and 1975 (13, 19 and 15, respectively).[14] These events occur during both the estimation and event periods chosen in our sample; unfortunately their impact in the estimation and event periods cannot be identified since some are relatively unimportant, and may have been anticipated and reflected in stock prices in periods outside of our sample. If some of these occurred during the estimation period and resulted in reductions in stock prices, the benchmark returns will be too low; this would bias the results of the analysis using the event period toward finding a positive impact from the event. This should be remembered in evaluating the results.

Results of Residual Analysis and Comparison-Period-Returns Approach

Formation of Petro-Canada[15]

There was more than one announcement event associated with the formation of Petro-Canada. The first of these event periods was centred at 22 June 1973 (the release of the 1973 EMR report described in Chapter 2) with a range beginning 18 May and ending 27 July 1973.[16] The event period resulted in 11 weekly rate-of-return observations. The estimation period surrounded the event period and ran from 12 January to 11 May 1973 and then from 3 August to 26 October 1973 for a total of 31 weekly rate-of-return observations. The post-event estimation period was not extended further since it would include data "contaminated" by the next "event." The announcement evaluated in this period is the federal government's interest in the concept of a Canadian NPC as exemplified by the 1973 EMR report tabled in the House of Commons by the Minister of Energy, Mines and Resources.[17]

The second event period was centered on 6 December 1973 when the Liberal government made the first official announcement (i.e., in an address by the Prime Minister in the House of Commons) of its intention to establish an NPC. The event period consisted of 12 weeks beginning 2 November 1973 and running to 18 January 1974. The estimation period again surrounded the event period and covered 3 August to 26 October 1973 and 25 January to 29 March 1974 (a total of 23 weekly observations).

The final event was the introduction in Parliament of a Bill to establish Petro-Canada (i.e., Bill C-32). At this point in time, any uncertainty surrounding the establishment and purpose of this entity was removed and security price movements should reflect this fact. However, Parliament was dissolved on 6 May 1974, a few days after the introduction of this Bill and its final version, Bill C-8, was introduced in

October 1974. Although the event period does not represent the actual introduction of Bill C-8, the intention should be sufficient to generate security price movements given the explicit commitment of the Liberal government to the notion of establishing a Canadian NPC. This final event period covered nine weeks beginning 5 April and ending 31 May 1974. The estimation period encompassed 29 weeks and consisted of two separate periods: 25 January to 29 March 1974 and 7 June to 9 August 1974.[18]

Although there is no overlap of event and estimation periods for any of the three events, the three estimation periods do have some dates in common. This will not cause any statistical problems when comparing the results from the event and estimation periods.

Summary statistics for the three events are presented in Table 3-1. The statistics shown are based on non-logarithmic rate-of-return calculations.[19]

Consider the first event. For the estimation period, the slope ($\hat{b}$) coefficient for each portfolio was in excess of unity reflecting a high-risk portfolio of securities: the values were 1.243 for the integrated oils and 1.201 for the oil and gas producers. A security with risk equal to that of the market would have a slope coefficient ($\hat{b}$) equal to unity. During the estimation period, the mean rate of return for the integrated oils sample was –0.0039 or –0.39 per cent per week. This is also reflected in a negative (and insignificant) value for the intercept ($\hat{a}$) of –0.006 which is interpreted as the rate of return that would be earned after having removed the impact of the market portfolio (here proxied by the TSE index

Table 3-1

Formation of Petro-Canada:[1] Summary Statistics for All Three Events

	Event		
	1	2	3
Integrated oils			
$\hat{b}$	1.243*	0.807	1.210*
	(3.075)	(1.747)	(5.074)
$\hat{a}$	–0.006	–0.004	–0.001
	(–1.062)	(–0.505)	(–0.105)
Estimation period			
Mean	–0.0039	0.0001	0.0013
Standard deviation	0.0367	0.0350	0.0365
Event period			
Mean	0.0065	–0.0053	–0.0302
Standard deviation	0.0458	0.0392	0.0616
Oil and gas producers			
$\hat{b}$	1.201*	0.838*	1.257*
	(3.681)	(2.412)	(6.305)
$\hat{a}$	–0.005	–0.003	–0.003
	(–1.130)	(–0.539)	(–0.698)
Estimation period			
Mean	–0.0031	0.0011	–0.0012
Standard deviation	0.0311	0.0278	0.0350
Event period			
Mean	0.0076	–0.0036	–0.0323
Standard deviation	0.0471	0.0390	0.0600
TSE index[2]			
Mean	0.002	0.005	0.002
Standard deviation	0.015	0.015	0.0230

* Residual is significantly different from 0 at a 1 per cent level.
1 The *t*-statistics are given between parentheses
2 Oil and gas index is removed from TSE index.

adjusted by removal of the oil and gas index). During the event period the mean rate of return was positive and equal to 0.65 per cent per week.

A similar pattern emerges for the oil and gas producers index. A negative average rate of return over the estimation period; a negative, but statistically insignificant $\hat{a}$; and a positive average rate of return during the event period.

The second announcement event displays a similar pattern for the integrated oils and the oil and gas producers. The slope coefficients of the two portfolios are approximately equal and less than unity; both have negative but insignificant intercepts ($\hat{a}$) over the estimation period. During the estimation period, the average weekly rates of return were positive, with the value for the oil and gas producers portfolio being larger than the value for the integrated oils. For our purpose, the interesting observation is the negative average rate of return over the event period. However, until the statistical tests are performed, this result is only suggestive of a negative impact of the establishment of an NPC.

The final event returns to the pattern observed for the integrated oils and oil and gas producers portfolios for the first event: slope coefficients in excess of unity as well as negative and insignificant intercepts. The average rate of return over the estimation period for the integrated oils was positive and for the oil and gas producers, negative. The event period, however, displays large and negative average rates of return. For example, for integrated oils there is a value of –0.0302 or –3 per cent per week! A similar number is found for the oil and gas producers index. In addition, it is only for this announcement event that the standard deviations for a particular sample display a large increase during the event period over the estimation period. This is consistent with large changes in the stock prices of the underlying securities in the portfolio. Therefore, from the raw data it appears that if the hypothesis of no impact (of the creation of a Canadian NPC) is to be rejected, it will be during either the second or third announcement events.

We now turn to a statistical analysis to determine the significance of the announcement events. The residuals and comparison-period returns for the first announcement event are presented in Table 3-2. There are no residuals in either the integrated oils or oil and gas producers samples over the event period that are statistically significant. Similarly, the

Table 3-2

Formation of Petro-Canada: First Announcement Event, Release of the 1973 EMR Report

	Integrated oils		Oil and gas producers	
	Residual	*t*-statistic	Residual	*t*-statistic
Residual				
Event time (weeks)				
–5	0.0116	0.2863	–0.0224	–0.6857
–4	0.0558	1.6511	0.0436	1.5995
–3	–0.0119	–0.3569	–0.0089	–0.3318
–2	–0.0105	–0.3078	0.0188	0.6808
–1	–0.0095	–0.2897	–0.0051	–0.1928
0	0.0112	0.3417	0.0054	0.2048
1	0.0326	1.9883	0.0231	0.8658
2	0.0154	0.4604	0.0105	0.3913
3	0.0214	0.6115	0.0248	0.8788
4	0.0205	0.6115	0.0324	1.1989
5	–0.0173	–0.5128	–0.0020	–0.0718
Comparison period				
Estimation period				
Mean	–0.0039		–0.0031	
Standard deviation	0.0367		0.0311	
Event period				
Mean	0.0065		0.0076	
Standard deviation	0.0065		0.0471	
t-statistic	–0.7572		–0.8516	

comparison-period-returns approach does not find a significant difference between the average rates of return during the event and non-event periods.[20] Hence, the release of the 1973 EMR report which discussed the pros and cons of the establishment of an NPC does not appear to have had any impact on investors' perceptions of the future profitability of the companies in either sample. These results are consistent with Chapter 2's argument that the 1973 EMR report showed no strong predilection in favour of the establishment of a Canadian NPC.

The results presented in Table 3-3 for the second announcement event (the announcement in the House of Commons of the government's intention to set up an NPC) are somewhat different. The residuals for the integrated oils and oil and gas producers samples appear to be affected by the same influence since their residuals tend to move together. During the event period there are 3 negative residuals out of 12 observations for the integrated oils, with the negative residual at week +2 being significantly different from zero and having a value of –7.0 per cent per week. This observation suggests that the announcement of the federal government's intention to set up an NPC was interpreted as an event which would reduce profits for the existing companies in the integrated oil companies. For the oil and gas producers there is also a large and statistically significantly negative residual at week +2. The value of this residual is –6.05 per cent. The comparison-period-returns approach for both integrated oils and oil and gas producers while showing a decline in the rate of return does not find a statistically significant difference.

The final event (the introduction of Bill C-32) should have the largest influence provided that the market had not discounted the impact prior to the public announcement. From the pattern of the observed residuals in Table 3-4, it is clear that the introduction of the Bill to establish a Canadian NPC does provide information to the market. During the nine-week event period for the integrated oils, five weeks have negative residuals. Of these, two are large, negative

Table 3-3

Formation of Petro-Canada: Second Announcement Event, Parliamentary Address of 6 December 1973

	Integrated oils		Oil and gas producers	
	Residual	*t*-statistic	Residual	*t*-statistic
Residual				
Event time (weeks)				
–5	0.0006	0.0182	0.0064	0.2478
–4	0.0378	1.0197	0.0257	0.9240
–3	0.0037	0.1035	0.0040	0.1484
–2	0.0128	0.3477	0.0201	1.7248
–1	0.0091	0.2282	–0.0005	–0.0168
0	–0.0066	–0.1923	–0.0088	–0.3410
1	–0.0247	–0.6242	–0.0245	–0.8236
2	–0.0700	–2.0205*	–0.0605	–2.3239*
3	0.0491	1.2917	0.0449	1.5725
4	0.0025	0.0709	0.0279	1.0522
5	0.0103	0.2683	0.0144	0.4993
6	0.0417	1.2209	0.0319	1.2437
Comparison period				
Estimation period				
Mean	0.0001		0.0011	
Standard deviation	0.0350		0.0278	
Event period				
Mean	–0.0053		–0.0026	
Standard deviation	0.0392		0.0390	
t-statistic	0.4164		0.4031	

* Residuals are significantly different from 0 at a 5 per cent level.

Table 3-4

Formation of Petro-Canada: Third Announcement Event, Introduction of Bill C-32

	Integrated oils		Oil and gas producers	
	Residual	*t*-statistic	Residual	*t*-statistic
Residual				
Event time (weeks)				
–4	0.0254	1.0219	0.0194	0.9341
–3	0.0110	0.4227	0.0088	0.4048
–2	0.0018	0.0725	0.0026	0.1276
–1	–0.0117	–0.4353	–0.0257	–1.1489
0	–0.0143	–0.5786	0.0035	0.1695
1	–0.0592	–2.3845*	–0.0503	–2.4241*
2	–0.0901	–3.2294*	–0.0812	–3.4813*
3	–0.0197	–0.8002	–0.0126	–0.6137
4	0.0550	2.2350*	0.0435	2.1139*
Comparison period				
Estimation period				
Mean	0.0013		–0.0012	
Standard deviation	0.0365		0.0350	
Event period				
Mean	–0.0302		–0.0323	
Standard deviation	0.0616		0.0600	
t-statistic	1.7280**		1.7680	

* Residuals are significantly different from 0 at a 5 per cent level.

** If it is assumed in the *t*-statistic calculation that the variance during the event period equals its value in the estimation period, the resulting *t*-statistics are significant at the 5 per cent level.

and statistically significant (i.e., at event times +1 and +2). For the oil and gas producers, there are four negative residuals with two of these that are statistically significant. It is interesting to note that the two statistically significant negative residuals for the oil and gas producers sample coincide with the two significant residuals noted in the integrated oils (i.e., at event times +1 and +2). Thus both indexes are affected by the same influence.

The comparison-period-returns approach provides confirmatory evidence with *t*-statistics demonstrating marginal significance (i.e., at a 10 per cent level). This result is all the more striking when it is observed that in both cases the mean rate of return during the event period has a much higher standard deviation.[21] One unusual result is the significant positive residual observed at event time +4 for both portfolios.[22]

Whether the establishment of Petro-Canada was to provide a "yardstick competitor" or to undertake investments which are not "commercially" viable or a combination of both, investors in the marketplace viewed this event with some alarm and reacted by reducing the market value of the equity of the companies in the integrated oils and oil and gas producing industries. While this result is observed weakly in event period 2, it is strong and significant in the third event.[23]

The ARCAN Acquisition

Petro-Canada's first corporate acquisition occurred in early August 1976 and involved the assets of ARCAN, a wholly-owned subsidiary of a U.S.-based corporation, Atlantic Richfield.[24] At the time of the acquisition, ARCAN was an exploration and development company primarily active in Western Canada; it did not have a presence in refining and marketing activities.

The public announcement that ARCAN was considering the sale of its Canadian unit to Petro-Canada was made in early March 1976.[25] For our purposes, the event period was thus centred around 12 March and extended a total of 11 weeks, from 6 February to 15 April 1976. The estimation period spanned a 20-week period, from 19 September 1975 to 30 January of the following year.

Table 3-5

Acquisition of ARCAN: Public Announcement

	Integrated oils		Oil and gas producers	
	Residual	*t*-statistic	Residual	*t*-statistic
Residual				
Event time (weeks)				
–5	–0.0104	–0.7879	–0.0075	–0.4070
–4	–0.0154	–1.1246	–0.0163	–0.8505
–3	0.0228	1.6479	0.0015	0.0758
–2	0.0044	0.3186	–0.0212	–1.1051
–1	–0.0171	–1.2873	0.0099	0.5349
0	–0.0014	–0.1044	–0.0243	–1.3143
1	–0.0172	–1.2932	–0.0263	–1.4211
2	0.0496	3.7121*	0.0022	0.1181
3	–0.0052	–0.3884	0.0358	1.9339**
4	–0.0039	–0.2909	–0.0129	–0.6900
5	–0.0066	–0.4978	0.0062	0.3336
Comparison period				
Estimation period				
Mean	0.0017	0.0026***	0.0106	
Standard deviation	0.0206	0.0177***	0.0229	
Slope ($\hat{b}$)[1]	0.9215		0.8337	
	(5.5011)		(3.5675)	
Intercept ($\hat{a}$)[1]	–0.0004		0.0088	
	(–0.1205)		(2.1566)	
Event period				
Mean	0.0009		0.0051	
Standard deviation	0.0228		0.0223	
t-statistic	0.0993		0.6463	

* Residual is significantly different from 0 at a 1 per cent level.
** Residual is significantly different from 0 at a 5 per cent level.
*** The TSE index.
1 The *t*-statistics are given between parentheses.

The results reported in Table 3-5 show that 8 out of the 11 residuals for the total event period for the integrated oils are negative. However, none of these negative residuals is significantly different from zero. For the oil and gas producers portfolio there were 6 of 11 negative residuals over the total event period, also without statistical significance. The two statistically significant residuals – at event time +2 for integrated oils and at event time +3 for oil and gas producers – are both positive. One possible explanation for this positive effect is the release, either directly or indirectly, of information in the policy document titled *An Energy Strategy for Canada* (Canada, Energy Mines and Resources 1976). One important implication in this document was the subsequent extension of tax incentives to explore in frontier areas (super depletion allowances) for the oil and gas industry.

Removing the large positive impact, the results suggest that this type of expansion of Petro-Canada's upstream activities had a negative but not statistically significant impact on security prices of firms in the oil and gas industry. In a similar vein, the results of Table 3-5 also reveal that the comparison-period approach shows positive average rates of return in both periods with a reduction in the mean value from the estimation to the event period. However, this reduction, although consistent with the negative residuals observed over the event period, is not statistically significant.

Thus, although not statistically significant, the preponderance of negative residuals, especially for the integrated oil sample, suggest that Petro-Canada's expansion was viewed with apprehension by investors.

It is known, however, that negotiations between Petro-Canada and Atlantic Richfield concerning this acquisition started as early as the last weeks of January 1976.[26] In light of this, we undertook several tests of the sensitivity of the results described above to changes in the definitions of the event and estimation periods for the ARCAN acquisition. The basic thrust of the results described in the previous paragraphs was maintained throughout. In particular, none of the additional experiments undertaken revealed any negative residuals that were statistically significant (even at the 5 per cent level) in either sample. On the same note, no negative rates of return (nor any statistically significant positive ones) were identified through the comparison-period-returns approach.

Growth into Refining and Marketing

During the late 1970s, Petro-Canada initiated and then increased its presence in downstream activities through the attempted takeover of Husky and the successful acquisitions of Pacific, Petrofina Canada, and the refining and marketing assets of BP Canada. For the purposes of this subsection, Petro-Canada's takeover activity began in mid-1978 with its attempted takeover of Husky and continued with the Pacific acquisition in 1978. The year 1980 was an active one for the oil and gas industry in general, and Petro-Canada in particular. The NEP was introduced, followed by an announcement by Marc Lalonde, then Minister of Energy, Mines and Resources, stating that Canada was considering acquiring an ownership position in unnamed oil companies; within this flurry of activity, Petrofina Canada was acquired. The final acquisition was that of some of Gulf Canada's downstream assets in 1985.[27]

Due to the confluence of events subsequent to the attempted Husky takeover it will be difficult to associate the observed performance of the rates of return on the portfolios with a specific event. This multiplicity of events is particularly troublesome subsequent to the introduction of the NEP in October 1980. For the period February 1981 to May 1982, there were 17 takeovers with a purchase price in aggregate of approximately $8 billion.[28] Therefore, these events will not be given an in-depth analysis.

Proposed Takeover of Husky

On 12 June 1978, Husky officials declined to comment on rumours of a planned takeover bid by Petro-Canada.[29] This denial was followed the next day by an announcement that Petro-Canada intended to make an offer to buy all of Husky's outstanding shares.[30] At the time of this announcement, specific details of the offer were not disclosed. As discussed in Chapter 2, subsequent activity and a bidding contest led to Petro-Canada's withdrawal from the process on 29 June 1978.[31]

How should one expect the Petro-Canada bid to affect the integrated oils and the oil and gas producers? As was noted on p. 34, a priori theoretical positions concerning the impacts of Petro-Canada takeovers (or attempted takeovers), are difficult to specify (or at least, to defend). This remark seems particularly appropriate in this case. On the one hand, the takeover bid for Husky could have been interpreted as evidence of Petro-Canada's desire to broaden its scope of activity to include refining and marketing. If this were the case and if it resulted in increased competition for a declining market in downstream activities (and/or a broadening of the "window"/information function) and if this had not already been taken into consideration at the time of Petro-Canada's formation, then one would expect the Husky bid to convey information to the marketplace which would result in downward pressure on security prices of integrated oil firms. Since the move would not materially affect the relationship between Petro-Canada and oil and gas producers, the effect of the takeover bid on the financial performance of oil and gas producers should be negligible. However, the proposed offer could also be interpreted as a signal that Petro-Canada was serious about acquiring an integrated oil company and given that substantial premia are usually paid to acquired shareholders,[32] the market value of all potential target companies would be expected to increase, ceteris paribus. Following this argument, one would expect that integrated oils would have abnormal positive performance, and oil and gas producers would be unaffected.

Therefore, one would expect the takeover bid for Husky to have no impact on the financial performance of oil and gas producers; since the direction of the impact on integrated oils is not clear, the empirical evidence will identify which if any influence is dominant. Unfortunately, if no significant impact on the financial performance of integrated oils is discerned by the empirical analysis, the interpretation is ambiguous. In such a case, it will be impossible to distinguish between the hypothesis that the two forces outlined above offset one another, and the hypothesis that the integration of Petro-Canada into downstream activities conveyed no information that had not already been taken into consideration by the market at the time of the announcement of Petro-Canada's formation.

One possible problem in evaluating these hypotheses is that the rates of return on the integrated oils sample will be

influenced by the expected positive abnormal performance of Husky itself. Since the integrated oils index is a weighted index where Husky's weight was approximately 10 per cent, and since Husky earned very large rates of return over the event period, this could be a serious problem. One way to minimize this impact was to define the event period to exclude some of the more active bidding that occurred in the takeover. In addition, the rates of return for the integrated oils index over the estimation and event periods were adjusted to remove the impact of Husky. This was accomplished by utilizing the actual daily rate of return on Husky and the weight of Husky in the index. Since the weights are available only on a monthly basis, the adjustment is not precise. However, it does reduce the average rate of return on the integrated oils index from 0.0069 (before adjustment) to 0.0017 (after adjustment) over the event period. The event period is centred on 12 June 1978, beginning on 1 June and ending on 21 June; this provides 15 daily observations. The estimation period runs from 4 April to 31 May 1978 (41 observations).[33]

The residuals and comparison-period returns for the integrated oils and oil and gas producers are presented in Table 3-6. Looking first at the integrated oils, it is observed that, 10 of the 15 reported residuals are positive; of these, one is statistically significant – on event day –2. Looking at the size of the average residuals, from time period 0 to 2 the residuals have a minimum value of 1 per cent. Cumulating

Table 3-6

Proposed Acquisition of Husky

	Integrated oils		Oil and gas producers	
	Residual	*t*-statistic	Residual	*t*-statistic
Residual				
Event time (days)				
–7	–0.0045	–0.5733	–0.0039	–0.4524
–6	0.0032	0.4150	0.0042	0.4851
–5	–0.0018	–0.2258	0.0035	0.4010
–4	–0.0005	–0.0629	–0.0025	0.2826
–3	–0.0011	–0.1372	0.0019	0.2198
–2	0.0277	3.5039*	0.0151	1.7371*
–1	0.0035	0.4427	0.0063	1.7178
0	0.0098	1.2493	0.0110	1.2646
1	0.0135	1.6666	0.0073	0.8209
2	0.0125	1.6061	0.0195	2.2718*
3	0.0055	0.7101	0.0084	0.9742
4	0.0038	0.4803	0.0008	0.0972
5	–0.0015	–0.1901	–0.0084	–0.9744
6	0.0072	0.9124	–0.0038	–0.4360
7	0.0050	0.5849	–0.0079	–0.8340
Comparison period				
Estimation period				
Mean	–0.0015	0.0016**	–0.0003	
Standard deviation	0.0083	0.0037**	0.0085	
Slope ($\hat{b}$)[1]	0.9077		0.4629	
	(2.7960)		(1.2946)	
Intercept ($\hat{a}$)[1]	–0.0033		–0.0012	
	(–2.4076)		(–0.7908)	
Event period				
Mean	0.0017		0.0023	
Standard deviation	0.0076		0.0085	
t-statistic	–1.2792		–0.9951	

* Residuals are significantly different from 0 at a 5 per cent level.
** The TSE index.
1 The *t*-statistics are given between parentheses.

the residual over the event period, the value is 8.2 per cent; this is the abnormal return that could have been earned by an investor over the event period.

The comparison-period returns identify an increase in the average daily return from –0.0015 (–0.15 per cent per day) in the estimation period to 0.0017 (0.17 per cent) during the event period. While consistent with the hypothesis of a positive impact on valuation, these differences in mean daily returns are not statistically significant (*t*-statistic of –1.2792).[34]

The results for the oil and gas producers are generally similar even though the pattern of the signs of the residuals differs somewhat from that observed for the integrated oils. There are four negative residuals over the event period and one positive significant residual occurs at day +2. The cumulative value of the residual is 5.65 per cent[35] which is approximately 4 per cent less than the value for the integrated oils.

Over the event period, the mean rate of return was 0.23 per cent compared to a value of –0.03 per cent during the estimation period. Although this suggests that the rate of return increased during the event period, this increase is not statistically significant, with a *t*-statistic of –0.9951.

The proposed acquisition of Husky, although displaying some statistically significant positive residuals for both the integrated oils and the oil and gas producers, did not reflect any significant abnormal financial performance when evaluated over the entire sample period. The evidence although suggesting a positive impact on both portfolios does not provide statistical support for this conclusion. Therefore we conclude that Petro-Canada's attempted takeover of Husky had a small positive, but apparently insignificant impact on the stock market valuation of both oil and gas and integrated oil samples.

In interpreting the results for the integrated oils it is important to remember that these are consistent with two hypotheses: that the Petro-Canada move set in motion opposite and offsetting forces or that it generated no additional information. Unfortunately, given the limitations of the data, it is not possible to test these hypotheses separately.

Pacific Petroleums

Since Pacific was a member of the integrated oils index during 1978, comprising approximately 16 per cent of the index based on market-value weights, and given that premia are usually paid on takeovers, Pacific was removed from the integrated oils index in the same manner as used for Husky. With this acquisition, Petro-Canada obtained a refinery in British Columbia and its first retail outlets. However, given the attempted takeover of Husky, it is unlikely that the Pacific Petroleums acquisition was the first signal of Petro-Canada's intentions of moving into refining and marketing activities.

The actual event day was determined to be 27 September 1978, a point at which Petro-Canada made the obligatory denial of interest in purchasing Pacific.[36] The actual announcement of Petro-Canada's intentions to purchase was made on 13 November 1978 with rumours heard earlier that month.[37] We have chosen the earlier date since it is likely that the stock market would have reacted to the rumours by November. The event period runs from 13 September to 12 October 1978 (21 observations), thereby ending before the second set of rumours began. The estimation period included 51 daily observations beginning on 29 June and extending to 12 September 1978.

As the results for the integrated oils and oil and gas producers reported in Table 3-7 reveal, there are no significant residuals either prior to or after the event date. For both the integrated oils and the oil and gas producers there is a long string of negative residuals after the event date (i.e., 9 out of 10 days are negative for the integrated oils and 9 out of 10, for oil and gas producers). During this same period, the TSE index had only one negative rate of return. Whereas string of negative residuals could be generated if the slope coefficients ($\hat{b}$) were unreasonably high, an analysis in which $\hat{a}$ and $\hat{b}$ were set to 0 and 1 respectively, gave substantially the same results.

From the results of the comparison-period-returns approach, the impact on the oil and gas producers and integrated oils indexes although showing a negative impact on the average returns are not statistically significant. It would thus appear that, when evaluated over the whole period, Petro-Canada's acquisition of Pacific yielded no new significant information concerning the Crown corporation's role and hence had no significant effect on the valuation of the integrated oils and oil and gas producers.

Petrofina Canada

It is very difficult to distinguish a unique announcement date for information concerning the Petrofina Canada takeover. On 12 September 1980 the Belgian-controlled Petrofina S.A. disclosed that an unknown suitor was negotiating for the acquisition of its Canadian subsidiary, Petrofina Canada.[38] A few months later, Marc Lalonde, then Minister

Table 3-7

Pacific Petroleums Acquisition

	Integrated oils		Oil and gas producers	
	Residual	*t*-statistic	Residual	*t*-statistic
Residual				
Event time (days)				
–10	0.0028	0.1853	–0.0075	–0.6241
–9	–0.0067	–0.4400	–0.0170	–1.3982
–8	0.0058	0.3724	0.0024	0.1952
–7	–0.0127	–0.8216	–0.0162	–1.3190
–6	0.0083	0.5244	0.0080	0.6399
–5	0.0123	1.7711	–0.0017	–0.1315
–4	0.0106	0.7012	–0.0007	–0.0559
–3	0.0021	0.1368	0.0041	0.3391
–2	–0.0043	–0.2826	0.0040	0.3286
–1	0.0046	0.3039	0.0098	0.8126
0	0.0019	0.1286	–0.0066	–0.5467
1	–0.0084	–0.5546	–0.0079	–0.6525
2	–0.0032	–0.2125	–0.0043	–0.3531
3	–0.0047	–0.3113	–0.0061	–0.5035
4	–0.0009	–0.0619	0.0005	0.0385
5	–0.0115	–0.7547	–0.0131	–1.0881
6	–0.0169	–1.0814	–0.0203	–1.6388
7	–0.0093	–0.5976	–0.0146	–1.1864
8	0.0037	0.2430	–0.0040	–0.3288
9	–0.0031	–0.2064	–0.0018	–0.1528
10	–0.0018	–0.1206	–0.0053	–0.4427
Comparison period				
Estimation period				
Mean	0.0032	0.0023*	0.0047	
Standard deviation	0.0171	0.0044*	0.0143	
Slope ($\hat{b}$)[1]	1.8931		1.8404	
	(3.9217)		(4.7986)	
Intercept ($\hat{a}$)[1]	–0.0014		–0.0003	
	(–0.5789)		(–0.1748)	
Event period				
Mean	0.0009		–0.0007	
Standard deviation	0.0008		0.0097	
t-statistic	0.5892		1.5986	

* The TSE index.
1 The *t*-statistics are given between parentheses.

of Energy, Mines and Resources, announced that Canada was considering complete ownership of several unnamed oil firms.[39] There was much speculation as to which companies were being considered and Petrofina Canada was certainly in this group. The formal identification of Petrofina Canada as the target was made a few months later, on 3 February 1981.[40]

The event date was chosen to be November 18, 1980 when Lalonde made his statement concerning the Canadian government's intention to acquire complete ownership of several oil firms operating in Canada. Since no specific target was identified by Lalonde, the impact of this announcement should not be restricted to Petrofina Canada shares. As noted earlier, shareholders of acquired firms are usually paid a premium above the going market value of their stock prior to the acquisition and one would thus expect Lalonde's announcement to have, ceteris paribus, a positive impact on the financial performance of firms in the oil and gas industry.

In this case, however, everything else is not held constant and the proximity of the announcement date with the introduction of the federal government's NEP in October

1980 certainly creates problems for empirical investigations of the type undertaken here. Without going into the details of the NEP, its announcement would be expected to have a depressing impact on the security prices of all firms in the industry.[41] Therefore, with the combined influences of these events it will be very difficult to interpret the results of the residual analysis and the comparison-period-returns approach. However, to minimize some of these problems we continued to remove the oil and gas index from the overall market index. In addition, Petrofina Canada was removed from the integrated oils index.

The event period extended from 4 November to 2 December 1980, which yielded 21 daily observations. The estimation period extended from 3 July to 3 November 1980, yielding a total of 85 data points. This estimation period encompasses the NEP announcement in October. As observed in Table 3-8, the mean daily return for the integrated

Table 3-8

Petrofina Canada Acquisition

	Integrated oils[1]		Oil and gas producers	
	Residual	*t*-statistic	Residual	*t*-statistic
Residual				
Event time (days)				
−10	−0.0100	−1.4947	−0.0006	−0.0311
−9	−0.0774	−3.9900*	−0.0440	−2.5420**
−8	−0.0029	−0.1436	0.0106	0.5834
−7	0.0449	2.2937**	0.0101	0.5768
−6	−0.0103	−0.5307	−0.0067	−0.3897
−5	0.0042	0.2144	0.0021	0.1208
−4	−0.0382	−1.9723***	−0.0167	−0.9662
−3	0.0382	1.9694***	0.0287	1.6560
−2	0.0245	1.2599	0.0122	0.7041
−1	0.0037	0.1894	0.0177	1.0215
0	−0.0025	−0.1283	−0.0030	−0.1720
1	−0.0365	−1.8815***	−0.0060	−0.3849
2	0.0119	0.6106	0.0045	0.2591
3	0.0114	0.5867	0.0010	0.0598
4	0.0097	0.4973	−0.0105	−0.6062
5	0.0063	0.3219	0.0048	0.2779
6	0.0184	0.9463	0.0347	2.0024
7	0.0249	1.2847	0.0052	0.3010
8	0.0168	0.8681	0.0221	1.2767
9	−0.0007	−0.0358	−0.0041	−0.2358
10	−0.0015	−0.0789	−0.0018	−0.1039
Comparison period				
Estimation period				
Mean	−0.0025	0.0015†	−0.0003	
Standard deviation	0.0219	0.0077†	0.0199	
Slope ($\hat{b}$)[2]	1.4042		1.3301	
	(5.1365)		(5.4548)	
Intercept ($\hat{a}$)[2]	−0.0046		−0.0023	
	(−2.1475)		(−1.2296)	
Event period				
Mean	0.0006		0.0038	
Standard deviation	0.0278		0.0206	
t-statistic	−0.5108		−0.8440	

* Residuals are significantly different from 0 at a 1 per cent level.
** Residuals are significantly different from 0 at a 5 per cent level.
*** Residuals are significantly different from 0 at a 10 per cent level.
† The TSE index.
1 Petrofina removed from integrated oil index.
2 The *t*-statistics are given between parentheses.

oil sample was –0.25 per cent; its value for the oil and gas producers although negative was much smaller (–0.03 per cent per day). This result suggests that over the estimation period there were influences which had a negative effect on firms. This result is confirmed for the negative and significant intercept term (–0.46 per cent per day) over the estimation period for the integrated oils sample. The impact on the oil and gas producers, while negative, was less severe. These results suggest that, as expected, the presence of the NEP announcement had a negative impact and will weaken any interpretation of the results from the residual and comparison-period approaches.

With the above *caveat* in mind, consider the residuals for the integrated oils reported in Table 3-8. Of the five significant residuals, the largest occurs at event day –9. It is negative and highly significant and probably reflects the influence of the NEP. The residuals at event days –4 and +1 are also negative and significant but offset by the positive significant residuals at event dates –7 and –3. Some of these results early in the event period could be a result of the Alberta retaliation to the NEP.[42] The unsettled nature of this period can be observed in the increased standard deviation of returns from the estimation to the event period. The cumulative average abnormal return over the event period was –3.5 per cent for the integrated oils index. From these results it is difficult to determine if the Petrofina acquisition had any impact on the integrated oils sample.

For the oil and gas producers there is only one statistically significant residual at event date –9. Over the event period the cumulative residual is approximately 6.2 per cent. From these results it appears that the Lalonde announcement had no significant effect on the oil and gas producers.

The results of the comparison-period-returns approach show an increase, albeit insignificant, in the mean daily rate of return in the event period for both sets of companies.

From both residual and comparison-period-return results, it appears that the net impact of the Lalonde announcement to acquire several firms in the oil and gas industry was negligible.

BP Canada's Downstream Assets

Petro-Canada agreed to purchase the marketing and refining assets of BP Canada around the end of October 1982.[43] On April 25, 1982 however, the U.K.-based parent company (British Petroleum) reported that it had been approached about the possible sale of its stake in the Canadian firm.[44] Although no specific dates could be found, there were also persistent rumours concerning an acquisition by Petro-Canada prior to that time.

An event date of 26 April 1982 was used with the event period extending from 12 April to 10 May of the same year. The estimation period began 2 February and ended 8 April 1982. From Table 3-9 only the residual on day –10 is statistically significant for the integrated oils index; the comparison-period-returns approach finds an increase, but it is not significant. There was no impact of the acquisition on the oil and gas producers index.[45]

When the event period was extended by 10 days at each end, it was found that for event day 0 there continued to be no statistically significant residuals for either index. However, for the period before event day 0, there were three statistically significant positive residuals for event days –19, –11, –10 for the integrated oils while two such residuals were observed at event days –19 and –11 for the oil and gas producers. These residuals probably reflect the emergence of new information, perhaps a rumour of the BP Canada acquisition.

Conclusions

The analysis undertaken in this chapter is subject to two *caveats*: that we have identified the event periods correctly and that no incidents which could have contaminated the data were ignored or overlooked. With these *caveats* in mind, the results in this chapter suggest the following conclusions.

First, financial markets viewed negatively the establishment of a Canadian NPC. Of the three announcement "events" identified on p. 37, the second (i.e., the December 1973 Parliamentary address) and especially the third event (i.e., the first reading of Bill C-32) provide empirical support for this conclusion. The empirical evidence presented in this chapter suggests that, on average, financial markets interpreted the federal government's announcement of its intention to create an NPC as an event that would eventually lead to reduced private sector cash flows. Thus, to some extent this exercise allows us to differentiate between two opposing hypothesis: the first, that Petro-Canada would either reduce the cost of capital to firms involved in joint ventures or obtain beneficial treatment from the federal government (and hence affect their stock-market valuation in a positive manner), and the second, the anticipation of reduced private-sector cash flows due to either the anticipated availability of additional information to the federal

Table 3-9

Acquisition of BP Canada's Downstream Assets

	Integrated oils		Oil and gas producers	
	Residual	*t*-statistic	Residual	*t*-statistic
Residual				
Event time (days)				
−10	0.0336	−2.1911*	0.0118	0.8168
−9	0.0117	0.7657	0.0231	1.6094
−8	−0.0196	−1.2876	−0.0207	−1.4469
−7	−0.0177	−1.1645	−0.0129	−0.9049
−6	−0.0001	−0.0041	0.0075	0.4231
−5	0.0085	0.5610	−0.0028	−0.1981
−4	0.0071	0.4683	−0.0006	−0.0424
−3	0.0028	0.1816	0.0087	0.6092
−2	0.0078	0.5131	0.0148	1.0346
−1	0.0064	0.4187	0.0031	0.2140
0	0.0044	0.2863	−0.0120	−0.8402
1	−0.0034	−0.2238	−0.0121	−0.8465
2	0.0016	0.1070	0.0002	0.0127
3	0.0073	0.4778	0.0106	0.7358
4	−0.0038	−0.2490	0.0041	0.2842
5	0.0024	0.1608	0.0034	0.2402
6	0.0161	1.0588	0.0246	1.7219
7	0.0040	0.2624	0.0057	0.3914
8	−0.0022	−0.1463	−0.0104	−0.7274
9	0.0082	0.5333	0.0134	1.9253
10	0.0031	0.2025	−0.0118	−0.8164
Comparison period				
Estimation period				
Mean	−0.0009	−0.0016**	−0.0026	
Standard deviation	0.0224	0.0070**	0.0238	
Slope ($\hat{b}$)[1]	2.4043		2.7640	
	(7.6517)		(9.3442)	
Intercept ($\hat{a}$)[1]	0.0028		0.0017	
	(1.2637)		(0.8201)	
Event period				
Mean	0.0021		−0.0012	
Standard deviation	0.0171		0.0172	
t-statistic	−0.5436		−0.2426	

* Residual is significantly different from 0 at a 5 per cent level.
** The TSE index.
1 The *t*-statistics are given between parentheses.

government or the expectation of new taxation (and hence of a negative effect on the valuation of firms in the oil and gas industry).

None of the other events undertaken by Petro-Canada and studied in this chapter had as much of a measurable effect on the stock-market valuation of firms in the oil and gas industry as did the announcement of the intention to establish a Canadian NPC. Keeping in mind the arguments made earlier on, this should not be too surprising for the upstream sector; the activities of ARCAN were concentrated in the upstream sector and the discussions surrounding the creation of Petro-Canada had concentrated on an exploration/development role for the Crown firm. Therefore, the evidence suggests that the possibility of Petro-Canada acquiring upstream assets through a takeover of an existing firm was taken into consideration by the stock market at the time Petro-Canada was created.[46]

Our suggestion on p. 19 that the downstream integration of Petro-Canada was a break with established practices, led us to expect the results of the empirical investigations performed on p. 42 to reflect that fact. They don't. This might suggest that financial markets are more "far-sighted" than are politicians. But, the contamination of the data by other events (e.g., the introduction of the NEP) and the fact that the test performed cannot differentiate between the different hypotheses lead us to interpret these results with care.

Overall, the results obtained in this chapter support the contention that the creation of Petro-Canada was viewed with trepidation by financial markets. However, based on the evidence presented in this chapter, it is impossible to reject the hypothesis that no additional systematic information concerning the consequences of Petro-Canada's behaviour for the financial performance of firms in the oil and gas industry was conveyed by activities undertaken by the Crown corporation after the announcement of the federal government's intention to set up a Canadian NPC.

4 Financial Performance

Introduction

In this chapter, the operating and financial performance of Petro-Canada is evaluated. The approach utilized evaluates performance by looking at the financial statements of Petro-Canada. Since performance cannot be evaluated in isolation, the financial performance of a comparison group composed of the Canadian subsidiaries of Texaco, Shell, Exxon (Imperial Oil) and Gulf,[1] was used as a benchmark. This approach is described in the following section. Although conceptually straightforward, its implementation requires a number of arbitrary decisions. The usefulness of the approach is compromised by its inability to identify whether observed relative poor performance is generated by inefficient operations, by operating decisions that must be undertaken to fulfill the non-commercial aspects of Petro-Canada's mandate, or by the influence of accounting techniques on the data upon which we must rely.

Most of Petro-Canada's growth has been via acquisitions of operating oil companies in a period of inflation and rapid changes in world oil prices. The acquisition of an independent operating entity (or an operating segment) is equivalent to an investment decision where its ultimate profitability depends upon the expected cash flows that will arise from the new combined operations and the price paid for the acquisition.[2] The expected post-merger cash flows will depend upon economic factors such as any economies of scale that are generated due to the combination of the previously independent entities and the efficiency with which the assets are managed. These economic factors will determine the increase in economic value due to the acquisition. The price paid for the acquisition will depend upon the expected cash flows, the relative bargaining power of the companies and the existence of competing bids if the acquisition is through a takeover bid. The sharing of the increase in economic value among participants to the acquisition will depend upon the price paid. For example, if the acquiring firm pays a price which reflects the full economic gain, then the target firm's shareholders receive the full gain and the former's shareholders earn a normal rate of return. Of course, the acquiring firm's shareholders could face a reduction in the market price of their equity if the acquisition price is too high.

A significant amount of research has been done in the area of mergers and takeovers (tender offers) using U.S.data. In a recent review article, Halpern (1983) concludes that the weight of the U.S. evidence is consistent with target firms receiving substantial premia and acquiring firms earning a normal rate of return.[3]

Thus when merger gains are available in a corporate combination, they appear to accrue to target rather than bidding firms' shareholders. Eckbo (1986) analyses the Canadian market for corporate control. The results are generally consistent with those based on U.S. data; however, in Canada the target firms gain less whereas bidder firms have a positive increase in their share price as a result of the combination.

Merger studies use stock-price data and make the reasonable assumption that stock prices will reflect immediately, and in an unbiased way, the perceived impact of the acquisition on the expected cash flows and the split of the economic gains resulting from the price paid. Therefore, the best way to determine the reasonableness of the price paid in an acquisition, and inferentially the prudence of the acquiring firm's management, is to evaluate the impact of the acquisition on the stock price of the acquiring firm. This impact should be adjusted for other influences on the stock price that occurred at the time of the acquisition. It is not correct to look only at the premium paid to target shareholders and conclude that if it is large, this implies financial imprudence. The high price may only reflect the large increase in expected cash flows that will occur with the integration of the previously independent entities.

When considering Petro-Canada's acquisitions, this avenue of research is closed. Although the premia paid to target firms can be identified, the impact on the acquiring firm, Petro-Canada, cannot be evaluated since the company does not have publicly traded common equity. The observation of "large" premia paid by Petro-Canada in any of its acquisitions is not sufficient to conclude that uneconomic prices were paid in the acquisition. The only relevant analysis (and one not in our mandate) is to compare the premia paid by Petro-Canada with premia paid at the same time for similar acquisitions by other firms.

Financial Statement Analysis

The financial performance analyses undertaken in this section though suggestive of certain conclusions, cannot be definitive. An alternative line of analysis would have been to examine directly Petro-Canada's capital budgeting process. This would have provided information on the analysis undertaken by Petro-Canada when considering major investment decisions; these datawere not released to us.[4]

To evaluate Petro-Canada's financial and operating performance, financial statement analysis is used. Performance is measured through the use of selected financial ratios for the period 1977 to 1984; this period reflects the availability of financial data for Petro-Canada.[5] The performance of Petro-Canada is compared to that of the "industry" which is composed of the four major integrated oil companies.[6] The financial ratios for the industry are calculated as a simple average of the financial ratios for the individual firms.

The financial statement analysis is in two parts. The first compares the financial ratios for Petro-Canada to the same ratios for the "industry," as constructed from the annual financial statement data for each firm from the Financial Post Corporation Service and the annual reports. The second part recognizes that some of the accounting practices, sources of financial capital, and financial policies followed by Petro-Canada differ from the industry. Adjustments, which by their nature must be arbitrary, are made to generate financial ratios for Petro-Canada that are more representative of industry practice.

Before considering the results of either of the approaches some qualifications are in order. First, as Table 2-1 showed us, from its inception in 1975, Petro-Canada has grown rapidly through acquisitions.[7] This growth changed the character of the company significantly over time as the original upstream operations were expanded into the downstream area; these operations have different risks and different profitability. Hence, conclusions based on the observation of a given ratio over the sample time period (i.e., trend analysis) would be suspect. Further, at any point in time the resulting financial ratios may not provide an estimate of the long-run performance of Petro-Canada but instead the impact of the acquisition in a given year. The importance of this problem is highlighted in Table 4-1 where the annual growth rates in total assets for Petro-Canada and the "industry" are presented for the years 1977 to 1984. As can be observed, very large growth rates for Petro-Canada relative to the industry occurred in 1977, 1978 and 1981.

Table 4-1

Percentage Annual Growth Rate of Total Assets

	Industry	Petro-Canada	Acquisition
1977	17.6	23.1	ARCAN
1978	26.1	281.1	Pacific
1979	20.4	1.9	
1980	19.0	10.4	
1981	13.7	75.5	Petrofina Canada
1982	10.5	14.2	BP Canada
1983	4.5	9.1	
1984	8.3	9.9	

Second, suppose it was observed that Petro-Canada had profits or cash flows much lower or more variable than the "industry." Is this necessarily the result of poor financial performance or does it follow from the mandate under which Petro-Canada operates? Unfortunately, ratio analysis at the level of publicly available information cannot distinguish between these hypotheses. Under its enabling legislation, Petro-Canada is expected to undertake investments in frontier exploration and other activities which have expected payoffs that are low relative to the risk undertaken (at least in the short run).

Third, the active acquisition program by Petro-Canada compared to the growth strategies of the other major companies causes another problem of interpretation. The acquisition prices paid by Petro-Canada were usually above the book value of the assets acquired. These excesses can reflect either the fact that the replacement cost of the assets is above their book value, or that Petro-Canada paid excessive prices. Whatever the genesis of the excesses, their existence has two influences which would reduce Petro-Canada's reported profitability ratios compared to the other major companies. First, the excesses are non-cash amortizations to income over a 20- to 25-year period. As of 31 December 1983, approximately $2 billion remained unamortized;[8] written off over 20 years, earnings would be lower by $100 million per year. Second, since Petro-Canada's asset base reflects these excesses, a downward bias will exist in any profitability ratio which uses assets or invested capital in its calculation. On the other hand, for the "industry," which did not grow through recent acquisitions, book value may be below replacement value, leading to an upward bias. This problem will be considered in our subsequent analysis.

In addition, the averaging procedure used to construct the "industry" ratios will reduce their variability over time causing them to appear more stable than the corresponding

Petro-Canada ratios. Finally, financial ratio analysis is undertaken since that may be the heart of the new reporting mechanisms under the revised *Financial Administration Act*. This then is a test of those mechanisms.

Comparability of Reported Ratios

Using Petro-Canada's financial statements for 1976 through 1984, ratios reflecting the following four financial characteristics were constructed: overall performance, financial condition, cash-flow and investment utilization. In assessing each measure, the special characteristics of the firm must be remembered. In addition, the financial viability of Petro-Canada as if it were a privately-owned corporation is assessed using a model which provides estimates of the probability of financial distress. The final or integrating analysis is the Dupont method. We turn to a consideration of each financial characteristic.

Overall Performance

Three conventional ratios are used to reflect the overall performance of Petro-Canada and the "industry." The first set of ratios measures performance as profitability from the point of view of the common equity holders. This reflects the management's stewardship role with respect to the owners of the company. These ratios will depend not only on the profitability of the assets but also on the financial leverage – the mix of debt, preferred, and common equity – chosen by the firms. The ratios used are the return on common equity, return on capital invested and the return on total assets; for these ratios, return is defined as net earnings after deduction of preferred share dividends of subsidiaries.[9]

The results are presented in Table 4-2 and displayed in Charts 4-1, 4-2 and 4-3. Although consistently lower in value for all three measures, the pattern of these ratios over time for Petro-Canada is very similar to that for the "industry." The only difference is that the industry ratios fall

Table 4-2

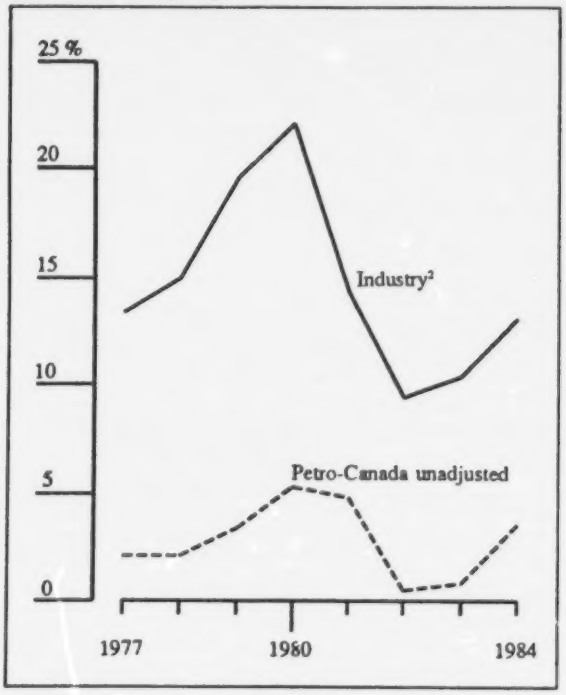
Overall Performance Ratios

	1976	1977	1978	1979	1980	1981	1982	1983	1984
					(Per cent)				
Return on equity (ROE)									
Industry		13.3	14.9	19.6	22.1	14.4	9.4	10.3	13.0
Petro-Canada unadjusted		2.0	2.0	3.4	5.3	4.7	0.4	0.8	3.5
Return on invested capital (ROI)									
Industry		10.8	12.8	16.8	19.3	12.5	8.0	8.7	11.0
Petro-Canada unadjusted		0.9	1.5	2.6	4.3	4.1	0.3	0.8	3.4
Return on assets (ROA)									
Industry		6.7	8.1	9.9	12.4	8.1	5.2	5.5	6.7
Petro-Canada unadjusted		1.2	0.7	0.9	1.6	1.3	0.2	0.4	1.8
Profit margin									
Industry	0.06	0.06	0.07	0.09	0.10	0.06	0.04	0.04	0.05
Petro-Canada unadjusted	0.09	0.10	0.07	0.04	0.06	0.02	0.00	0.01	0.03
EBIT*/invested capital									
Industry		20.3	22.5	30.8	36.0	28.3	22.2	21.8	26.4
Petro-Canada unadjusted		5.9	4.9	9.7	12.1	14.9	8.8	7.4	11.7
EBIT/total assets									
Industry		13.8	15.1	20.1	23.3	18.4	14.3	13.9	16.7
Petro-Canada unadjusted		5.1	3.9	7.7	9.5	9.0	5.3	5.0	7.2

* EBIT is earnings before interest and taxes.

Chart 4-1

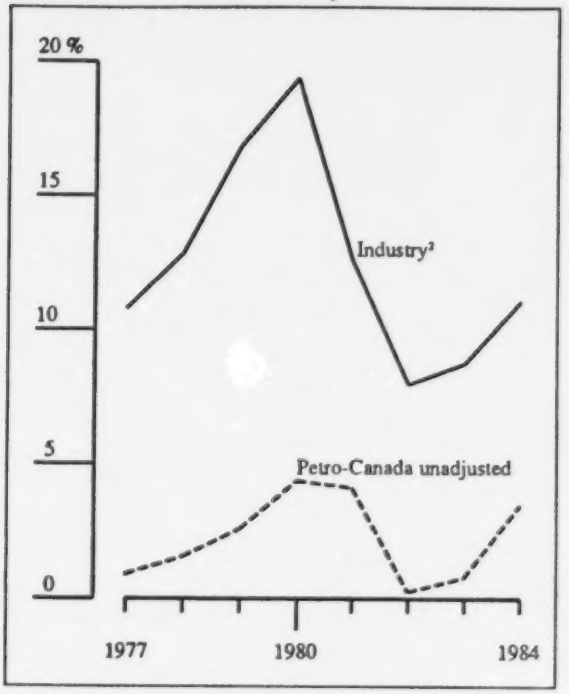
Return on Equity[1]



1 ROE = Net income/Average Equity.
2 Industry denotes a four company average of Gulf, Imperial Oil, Shell and Texaco.

Chart 4-2

Return on Investment Capital[1]



1 ROI = Net Income/Average (Equity and Long-Term Debt).
2 See Chart 4-1.

markedly during 1981 whereas the ratio for Petro-Canada decreases very slightly. This suggests that Petro-Canada's financial performance was less affected than that of the "industry" by the introduction of the NEP. This issue was discussed in Chapter 2, namely Petro-Canada's possible influence on the design of federal energy policy.

The profit margin, presented in Chart 4-4 is defined as net income divided by revenue and is utilized as an overall performance measure; this ratio identifies the profitability to the equity holders per dollar of revenue. Petro-Canada's profit margin is relatively high in the 1976-78 period but then deteriorates to values well below those for the "industry." The high ratio for Petro-Canada in the early years appears to be due to low revenues rather than high net income.

The ratios which use net earnings are affected by the capital structure of Petro-Canada (i.e., the financing charges associated with debt and redeemable preferred shares). Thus it is difficult to disentangle the results of operational efficiency from capital structure decisions. To address the efficiency issue directly, another set of financial ratios was developed.

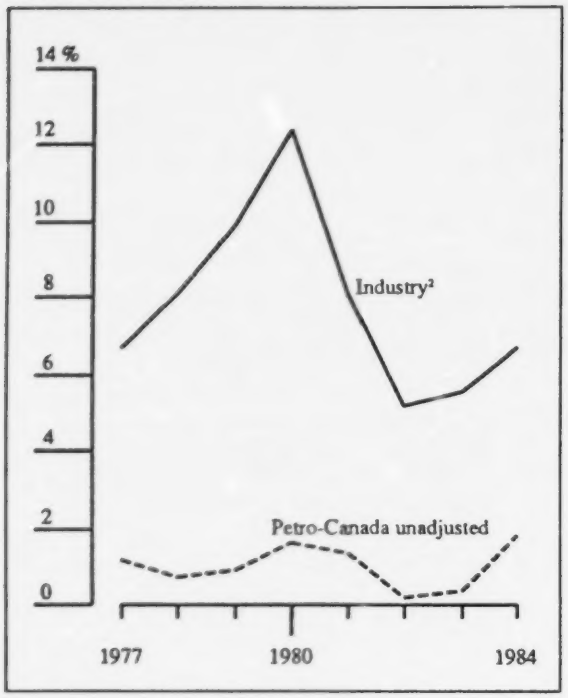
These ratios, measured as earnings before interest and taxes (hereafter, EBIT) divided by total invested capital[10] and as EBIT divided by total assets, highlight the profitability of the overall operations. As can be observed in Charts 4-5 and 4-6, Petro-Canada has values for these ratios that are well below those for the "industry." One contributing factor is the excess of acquisition price over the book value of assets Petro-Canada has acquired and its amortization. However, the Petro-Canada and "industry" ratios generally move together.

Financial Conditions

Evaluating financial conditions involves a number of financial ratios which measure different aspects of the firm's operations. The first set of ratios reflects the liquidity

Chart 4-3

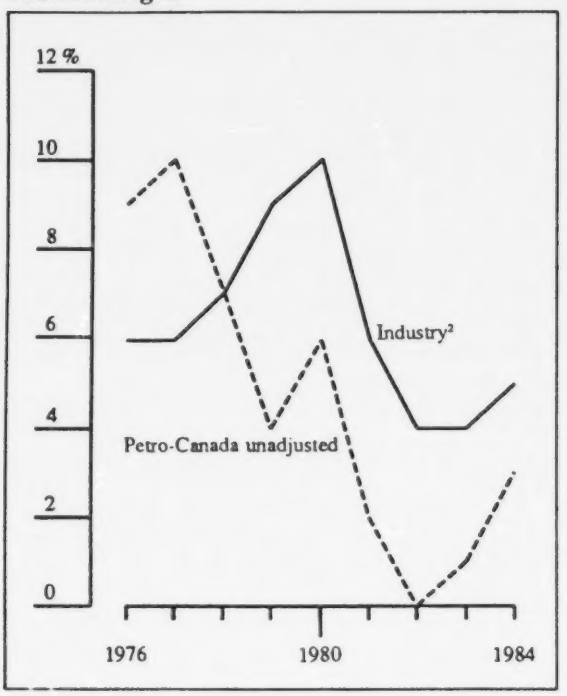
Return on Assets[1]



1 ROA = Net Income/Average Total Assets.
2 See Chart 4-1.

Chart 4-4

Profit Margin[1]



1 Profit Margin = Net Income/Revenue.
2 See Chart 4-1.

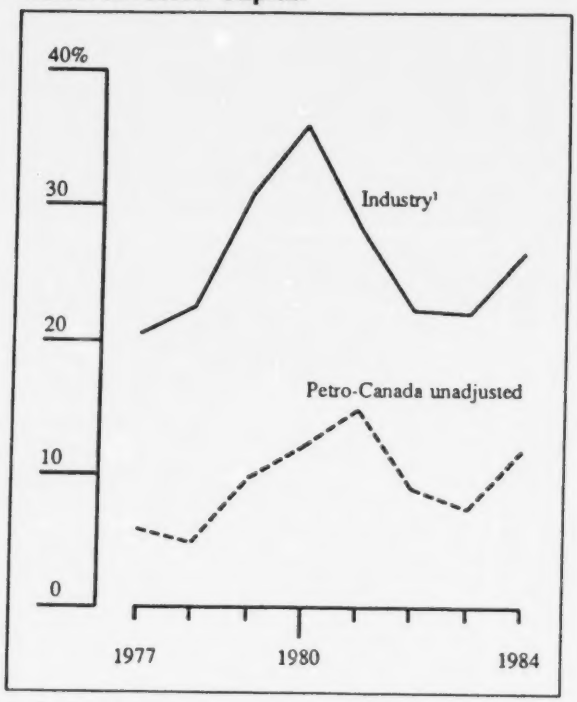
position of the firm; the greater the liquidity, the greater the ability of the firm to meet cash drains by use of internal sources of funds, such as liquid assets. High liquidity therefore implies lower risk exposure and a commensurate lower return. The liquidity ratios used in this analysis are: i) the current ratio defined as the ratio of current assets to current liabilities, and ii) the quick ratio, defined as the ratio of current assets less inventories to current liabilities.

The results of the liquidity ratios are presented in Table 4-3 and Charts 4-7 and 4-8. The current ratio for the "industry" is above unity in every year; this is also true for Petro-Canada in every year except 1977. The current ratio for Petro-Canada improves in the subsequent years where it approaches the "industry" value. There is no benchmark value for the current ratio since the true liquidity of the current assets depends primarily upon the ability to sell the inventory quickly, if necessary, and at prices reflecting the value in the books. The quick ratio, graphed in Chart 4-8, is designed to alleviate this problem of interpretation by measuring liquidity excluding inventories; the benchmark value is usually taken as unity. With the exception of 1979, the "industry" and Petro-Canada values are all above unity.[11] Since the variability in the Petro-Canada ratio is likely due to considering one firm in isolation, the results for the Crown corporation resemble closely those of the "industry." Note that these results are not biased by different growth rates or acquisition rates.

The next set of ratios measures the financial risk of Petro-Canada as reflected first in the debt/equity ratio and second, in the fixed charge coverage ratio. The debt/equity ratio identifies the choice of financial structure; the greater the ratio of debt to equity, the greater is the risk of default due to poor financial results. In fact, the higher the debt/equity ratio, the greater is the variability in the returns to equity holders generated by variability in earnings from the assets. An issue in calculating debt/equity ratios is the procedure used to incorporate preferred shares. This is particularly vexing for Petro-Canada since there are two separate types of preferred shares found in its balance sheet. The redeemable preferred shares issued by a subsidiary in 1979 have an

Chart 4-5

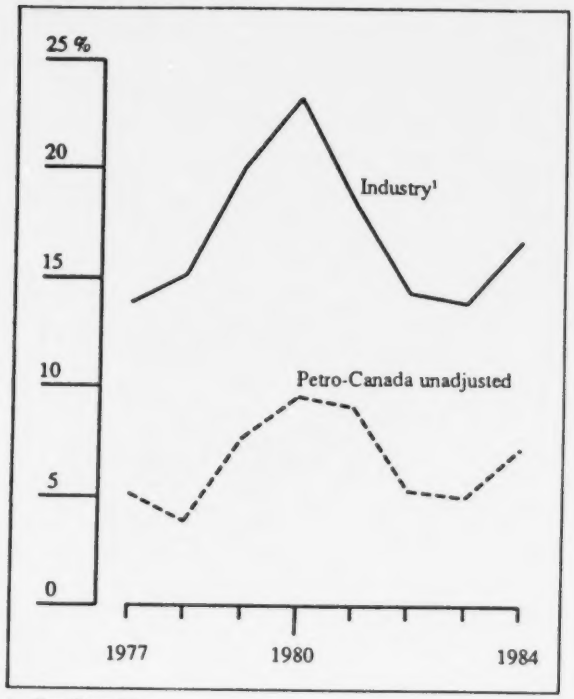
EBIT/Invested Capital



1 See Chart 4-1.

Chart 4-6

EBIT/Total Assets



1 See Chart 4-1.

annual dividend requirement. The initial amount issued was $1,464 million and during 1983, approximately $70 million were redeemed.[12] By 1984, only $1,312 million remained outstanding.

The second set of preferred shares is held by the government of Canada, has no stated rate of dividends and is redeemable at par at the option of the company.[13] For all purposes, these preferred shares are really common equity and will be considered as such in any ratio calculations.

Preferred equity, as issued by the Petro-Canada subsidiary, is a hybrid security which, for some applications, can be viewed as debt and for others, common equity. In our analysis, there are two debt/equity ratios constructed. The first is obtained by dividing long-term debt (including the current portion) by the sum of common and preferred equity issued by the subsidiary. The second or alternate ratio includes the subsidiary preferred shares as debt.

Considering the first ratio, it is observed in Chart 4-9 that the debt/equity ratio for Petro-Canada decreased dramatically over time from a value of 0.620 in 1976 to the 1984 value of 0.03. Thus, for all practical purposes, Petro-Canada is unlevered, based on this measure.[14] The "industry" debt/equity ratio increased in 1977, fell until 1980, and then increased again. Petro-Canada's debt/equity ratio appears to move opposite to developments in the industry for the period 1976 to 1977 and 1980 to 1983; when the industry leverage ratio increased, Petro-Canada's fell and vice versa. Since the Crown corporation made heavy use of preferred-share financing and issued relatively little common equity, until the introduction of Canadian Ownership Account funds as equity in 1981-82, the alternative leverage ratio for Petro-Canada had a much higher value for each year compared to the previous definition. This ratio fell between 1976 and 1977, increased dramatically until 1979 and has fallen since to approach the "industry" value (see Chart 4-10). The "industry" ratios also were higher using this alternative definition but since these firms did not rely heavily on preferred shares, the increase was not dramatic.

The last financial risk ratio considered is the fixed charges ratio; this identifies the before-tax funds available to pay for

Table 4-3

Financial Condition Ratios

	1976	1977	1978	1979	1980	1981	1982	1983	1984
					(Per cent)				
Current ratio									
Industry	1.67	1.81	1.95	2.02	2.36	2.35	2.36	2.30	2.21
Petro-Canada unadjusted	1.30	0.93	1.51	1.75	1.39	2.37	2.05	1.95	2.05
Quick ratio									
Industry	1.20	0.99	1.18	1.33	1.48	1.26	1.30	1.40	1.36
Petro-Canada unadjusted	1.23	0.85	1.28	1.55	1.02	1.44	1.05	1.08	1.06
Debt-to-equity ratio									
Industry	0.29	0.37	0.18	0.16	0.13	0.20	0.27	0.28	0.25
Petro-Canada unadjusted	0.62	0.39	0.15	0.13	0.11	0.09	0.07	0.04	0.03
Alternate debt-to-equity ratio*									
Industry	0.29	0.38	0.34	0.31	0.23	0.28	0.35	0.34	0.30
Petro-Canada unadjusted	0.62	0.39	2.24	1.83	1.57	1.07	0.54	0.40	0.32
Fixed charge coverage									
Industry	20.58	13.78	12.39	14.22	18.91	12.51	8.69	10.26	11.53
Petro-Canada unadjusted	3.82	3.88	2.05	1.25	1.43	1.46	1.27	1.94	2.94

* Defined as long-term debt plus preferred equity divided by common equity.
Note Temporary financing at year-end 1981 excluded.

fixed charges. Since preferred dividend payments are not tax deductible for the corporation, they must be adjusted to before-tax values to be consistent with the other quantities in the ratio.The fixed charges coverage is defined as follows:

$$\text{Fixed charge coverage} = \frac{\text{EBIT}}{\text{Interest payments} + \frac{\text{Preferred dividends}}{1 - \text{tax rate}}}$$

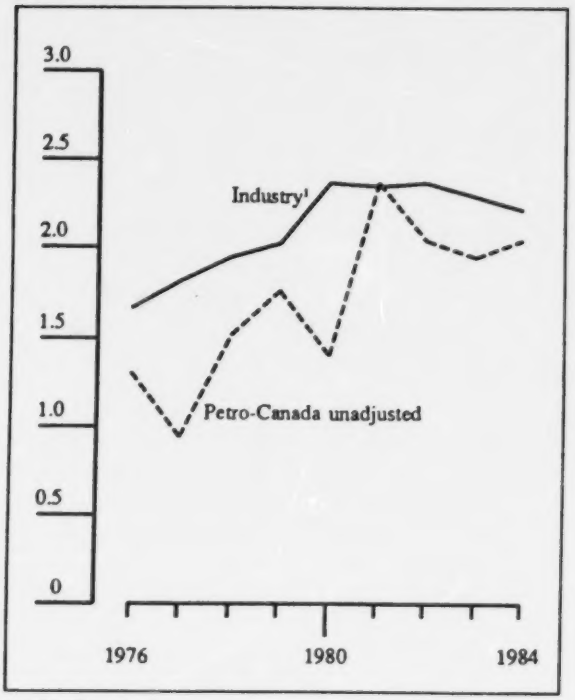
In this analysis a tax rate of 50 per cent is used. The larger is this ratio, the less is the risk of financial distress to investors in fixed income securities and common equity. A very low ratio signals financial distress.

The values for this ratio are presented in Table 4-3 and portrayed in Chart 4-11. Petro-Canada has a very low level of fixed charges coverage relative to the industry, reflecting Petro-Canada's significant use of preferred shares. This is consistent with the large differences in the debt/equity ratios where debt is defined to include preferred shares. Whether a non-Crown corporation operating without explicit and/or implicit guarantees on fixed income securities could be viable with the fixed charge coverage found for Petro-Canada is moot.

A final financial condition test was to determine whether Petro-Canada differed from the "industry" with respect to the probability of bankruptcy as it could be measured if Petro-Canada were a privately-owned firm. There has been a substantial amount of research on the prediction of bankruptcy using financial statement ratios.[15] Using well established methodologies, Altman and Lavallée (1980) derive a statistic which can be used to distinguish between "bankrupt" and "non-bankrupt" firms in the Canadian context. For each firm that is being analyzed, a "Z" score is calculated based on a mathematical expression derived from a sample of bankrupt and non-bankrupt Canadian companies. The score is compared to a cutoff value of zero. If the firm has a positive "Z" score, it is classified as "non-bankrupt"; firms with a negative score are classified as "bankrupt" and hence have a high probability of default.

Chart 4-7

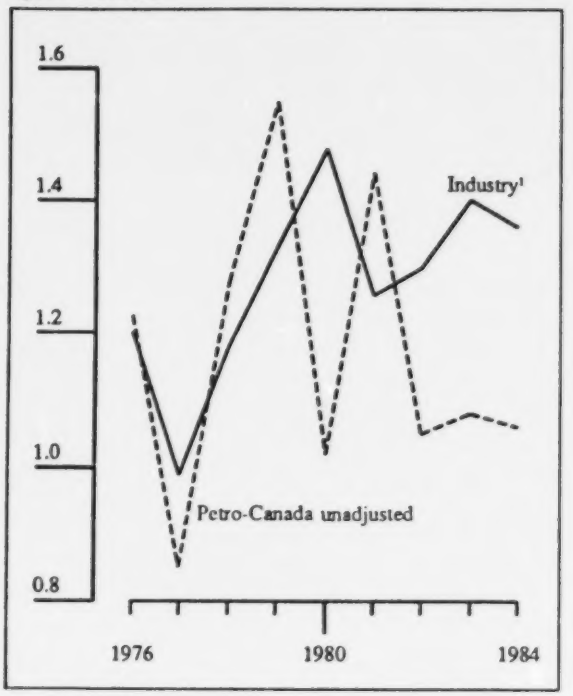
Current Ratio



1 See Chart 4-1.

Chart 4-8

Quick Ratio



1 See Chart 4-1.

The expression used by Altman and Lavallée (1980) to obtain an individual firm's "Z" score is as follows:

$$\text{"Z"} = -1.626 + 0.234\,X_1 - 0.531\,X_2 + 1.002\,X_3 + 0.972\,X_4 + 0.612\,X_5$$

where X_1 = sales/total assets;
X_2 = total debt/total assets;
X_3 = current assets/current liabilities;
X_4 = net profit after tax/total debt; and
X_5 = rate of growth of equity minus rate of asset growth.

The "Z" scores for the "industry" and for Petro-Canada were calculated for the years 1977 to 1984 and are as follows:

The "Z" values for the "industry" are positive for the entire sample period, increasing from 0.88 in 1977 to a peak of 2.97 in 1980 and then decreasing in later years. The results for Petro-Canada are generally low relative to the "industry" and do not follow a simple pattern. The firm is classified as "bankrupt" in 1977 and 1978 and is marginal in 1980; these years are clearly affected by early growth. In the last four years of the sample, Petro-Canada appears to have improved its performance and can no longer classified be as "bankrupt."[16]

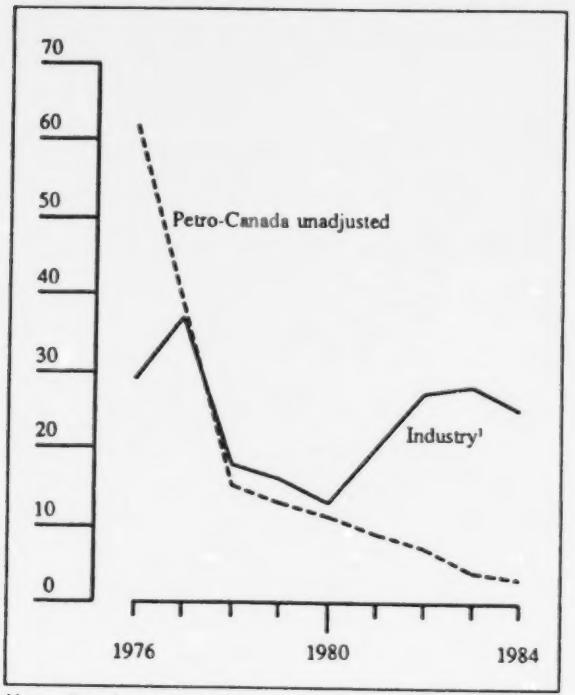
Cash Flow

For most purposes, the success of a company's operations is measured not by net earnings, which reflect the results of

	"Z" scores							
	1977	1978	1979	1980	1981	1982	1983	1984
Industry	0.88	1.52	1.86	2.97	2.33	1.97	2.02	0.86
Petro-Canada	–0.64	–1.55	0.34	0.00	0.87	1.68	0.65	0.84

Chart 4-9

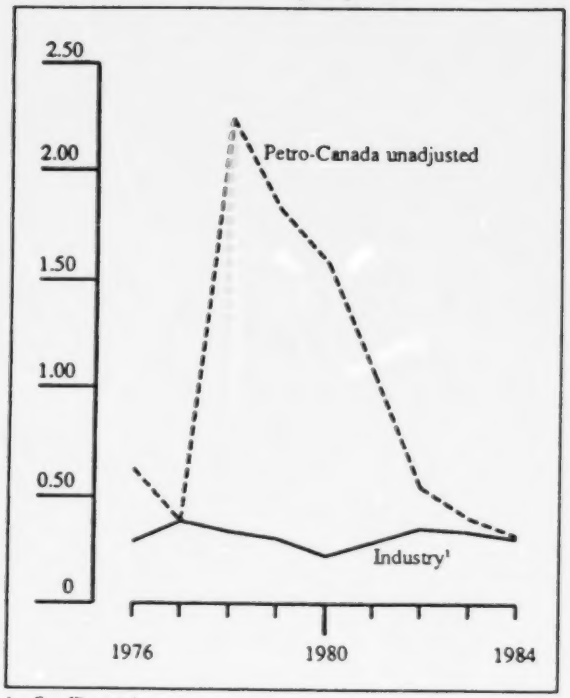
Debt-to-Equity Ratio



NOTE One observation is hidden.
1 See Chart 4-1.

Chart 4-10

Alternate Debt-to-Equity Ratio



1 See Chart 4-1.

a number of arbitrary accounting conventions, but by its after-tax cash flow. Since the amortization of the excess acquisition cost is a non-cash item, it will not affect the cash-flow calculation. In addition, specific incentives through the taxation system result in the true economic consequences of operations being blurred if net income from the firm's books is used. In this analysis, the cash flow is obtained from the relevant Annual Reports under the entry titled "funds from operations." To standardize the cash flow for the size of the operations, we have divided it either by revenues or average total assets. The former will be unaffected by the excess-acquisition-cost problem.

These ratios are presented in Table 4-4 and graphed in Charts 4-12 and 4-13. For the first ratio, which standardizes cash flow by revenues, it is observed that Petro-Canada began in 1976 with a very large ratio, reflecting low initial revenues, and has consistently approached a value just above that for the "industry." Petro-Canada's ratio is higher since it is currently non-taxable and its financing costs are less than its integrated competitors. The "industry" ratio has fluctuated over the sample period within a narrow band of values.

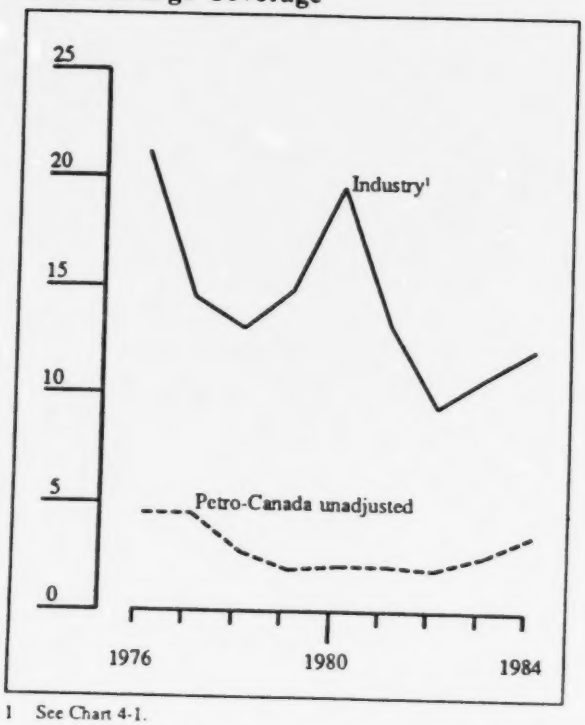
When using total assets as the denominator in the ratio, the position of Petro-Canada relative to the "industry" is reversed, although the two ratios, except for 1978, appear to move together (Chart 4-13). The lower ratio for Petro-Canada could reflect the existence of a large volume of recently acquired assets.

The study of Petro-Canada by Dominion Securities Pitfield (1984) considers the 1984 ratio of cash flow after preferred dividends to the appraised value of common equity for Petro-Canada and its competitors. As at the end of 1983, the appraised value of Petro-Canada was $6.7 billion.

Using market value of equity estimates as of 29 September 1984, the ratio of cash flow to market value of equity for the "industry" is 17.9 per cent. Using the appraised value for Petro-Canada of $6.6 billion at 30 June 1984, this ratio is

Chart 4-11

Fixed Charge Coverage



1 See Chart 4-1.

11.4 per cent, well below the "industry" value. This suggests that the Pitfield appraised value of Petro-Canada may be too high.

A common problem in ratio analysis is to focus too narrowly on the ratios and ignore the components. Although defined somewhat differently than used in the previous table, the values of assets, revenues and funds from operations are presented in Table 4-5 for the companies in the "industry" and for Petro-Canada. As is obvious, Petro-Canada was a very large company by 1982. In terms of assets, it was the largest (again, remember that the indicator here is not market value); for revenues, the smallest; in terms of cash flow, it ranked behind Shell and Imperial Oil.

Investment Utilization

To measure the efficiency with which a firm operates, investment utilization ratios are often investigated. These ratios relate the revenues generated by the firm to investment in particular categories; the resulting ratio reflects the efficiency with which the asset category is utilized.

For example, consider the asset turnover ratio which relates revenues to average total assets. If this ratio is say, 1.2, then revenues are 1.2 times larger than assets. The larger the value of this ratio, the more efficient is the firm in its use of assets. In interpreting this and other turnover ratios, their relative sizes across industries may not reflect different efficiencies but different products, technologies and operations. Even within an industry, legitimate comparisons can be difficult if firms use different technologies. Comparisons are valid over time if no significant changes in technology occur. Remember, Petro-Canada does explore predominantly in offshore areas and may thus not use the same "technology" as the rest of the industry.

Considering the asset, invested capital, equity, and capital intensity ratios in Table 4-6 and Charts 4-14 through 4-17, a similar picture emerges. Petro-Canada has a lower value than the "industry" for all four ratios. The asset and invested capital turnover ratios are reasonably stable and

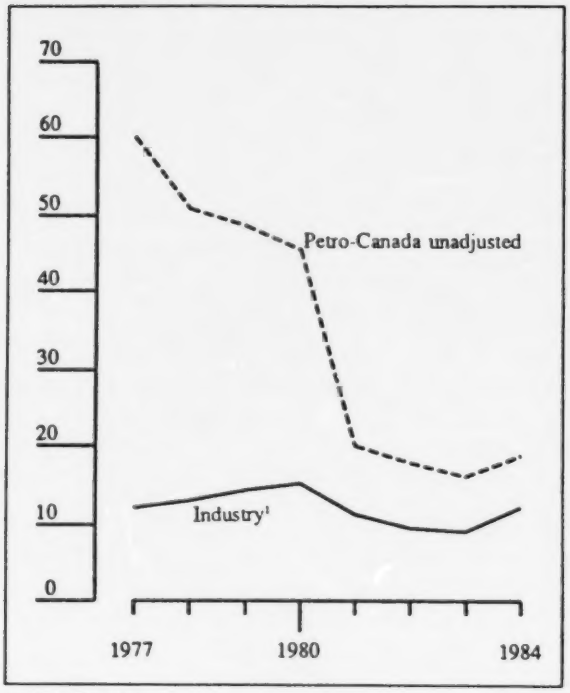
Table 4-4

Cash-Flow Ratios

	1977	1978	1979	1980	1981	1982	1983	1984
Cash-flow/revenue								
Industry	0.119	0.131	0.143	0.152	0.112	0.094	0.091	0.122
Petro-Canada unadjusted	0.603	0.510	0.487	0.456	0.200	0.179	0.162	0.188
Cash-flow/total assets								
Industry	0.145	0.163	0.184	0.190	0.146	0.119	0.115	0.142
Petro-Canada unadjusted	0.070	0.047	0.106	0.127	0.102	0.071	0.086	0.146

Chart 4-12

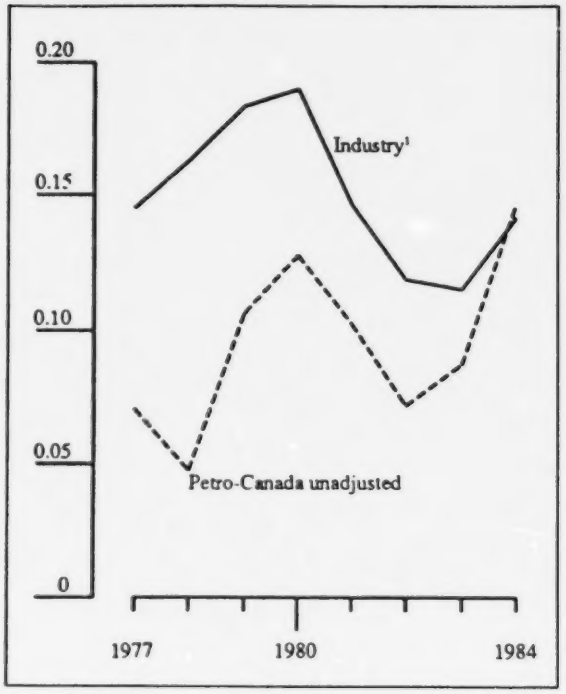
Ratio of Cash Flow to Revenue



1 See Chart 4-1.

Chart 4-13

Ratio of Cash Flow to Total Assets



1 See Chart 4-1.

without any discernable trend for the "industry." For Petro-Canada, efficiency appears to increase over time; this may be due to improved overall efficiency, or changes in the mix of operations. The equity turnover and capital intensity ratios for both the "industry" and Petro-Canada increase over the sample period; the increase for the Crown corporation is much more dramatic relative to that for the "industry." Over the sample period, Petro-Canada thus appears to be relatively "inefficient" in its use of invested funds and assets when compared to the "industry," but this may well be due to rapid growth. The turnover ratios improve slowly over the sample period but remain relatively low.

The Dupont Method

The Dupont method breaks down return on total assets (hereafter, ROA) into two components: profit margin and asset turnover.[17] From Table 4-7 and Charts 4-18 through 4-20, it is clear that the "industry" trend in return on assets is caused primarily by fluctuations in profit margin. Asset turnover is fairly stable over the entire period, rising only slightly in the later years.

For Petro-Canada, the fluctuations in the return on assets are caused by large changes in both underlying ratios. The company had very poor performance relative to the industry over the entire period; improvements in asset turnover from 1978 onward were offset by a deteriorating profit margin. Asset turnover improves to only half of the industry average, as revenue increases are offset by increased fixed assets. The relatively poor asset turnover performance could be due to the large excess acquisition cost reflected in the assets.

Conclusions

In this section we have examined a number of financial ratios, likely of the kind being considered by Treasury Board, as gauges of the performance of Crown corporations. These ratios included measures of the profitability that would accrue to the shareholder (return on common

Table 4-5

Values for Selected Financial Categories, 1980-82

	Assets	Revenue	Funds from *operations*
		($ Millions)	
Texaco			
1980	2,603.1	3,572.0	460.8
1981	2,879.0	4,461.0	404.6
1982	2,966.0	4,842.0	384.0
Gulf			
1980	3,692.0	3,835.0	542.0
1981	4,468.0	4,710.0	520.0
1982	4,915.0	4,927.0	366.0
Shell			
1980	3,449.0	4,023.0	644.0
1981	3,778.0	4,801.0	642.0
1982	4,660.0	5,191.0	639.0
Imperial Oil			
1980	6,244.0	6,349.0	875.0
1981	7,096.0	8,185.0	839.0
1982	7,486.0	8,618.0	830.0
Petro-Canada			
1980	3,766.8	1,035.2	457.5
1981	6,612.5	2,715.8	527.0
1982	7,552.1	3,378.6	500.3

Source Price Waterhouse (1982 and 1983).

equity, return on capital invested, return on total assets); measures of the financial condition of the firm (liquidity, debt/equity, fixed charge coverage); measures of cash flow; measures of investment utilization (asset turnover, capital intensity) and finally a combined measure of financial stability – the Dupont method. We have compared these ratios for Petro-Canada to equivalent ratios for the "industry" – (Texaco, Shell, Imperial Oil and Gulf). These comparisons are clouded by the following factors:

1) differences in accounting practices;

2) differences in "technology" – during the period under consideration, Petro-Canada had a social objective to invest in high-risk activities;

3) differences in valuation – for the "industry" we have book value and market value. For Petro-Canada we have only book value. Petro-Canada's book value may significantly differ from that of the industry simply because Petro-Canada is new and has obtained the majority of its assets through recent acquisitions of private-sector firms;

4) vagaries of Petro-Canada's accounting methods – Petro-Canada's book value contains large amounts of preferred shares which pay no dividend, injections from the government, loans and other items which affect an analyst's ability to measure costs;

5) differences in the tax-paying status of companies in the "industry" and Petro-Canada – the use of debt and preferred shares, and hence financial ratios, will depend upon the tax-paying status.

The evidence is that except for cash-flow and liquidity measures, Petro-Canada performs significantly poorer than the industry. Moreover, the cash-flow and liquidity measures would appear to be those measures least affected by differences in growth rates or accounting practices. Nonetheless, we cannot ignore completely the results for the other financial ratios and conclude that Petro-Canada is as efficient as its private-sector counterparts. The fact that we cannot unambiguously measure performance and determine factors accounting for differences in performance does have important implications for our consideration of

Table 4-6

Investment Utilization Ratios

	1977	1978	1979	1980	1981	1982	1983	1984
Asset turnover								
Industry	1.210	1.261	1.280	1.259	1.327	1.274	1.327	1.233
Petro-Canada unadjusted	0.116	0.092	0.217	0.280	0.519	0.477	0.528	0.577
Invested capital								
Industry	1.790	2.002	2.169	2.139	2.198	2.091	2.092	2.018
Petro-Canada unadjusted	0.133	0.205	0.599	0.741	1.424	1.014	1.060	1.118
Equity turnover								
Industry	2.333	2.312	2.312	2.239	2.350	2.348	2.524	2.487
Petro-Canada unadjusted	0.198	0.289	0.824	0.959	1.956	1.356	1.135	1.163
Capital intensity								
Industry	1.920	1.651	2.072	2.308	2.433	2.400	2.532	2.516
Petro-Canada unadjusted	0.143	0.139	0.308	0.357	0.686	0.642	0.703	0.777

Note Asset turnover = $\frac{\text{Revenue}}{\text{Average total assets}}$

Invested capital = $\frac{\text{Revenue}}{\text{Average invested capital}}$

Equity turnover = $\frac{\text{Revenue}}{\text{Average common equity}}$

Capital intensity = $\frac{\text{Revenue}}{\text{Average net fixed assets}}$

evaluation measures, issues left to the next chapter. Before turning to that question, we attempt to adjust Petro-Canada's financial performance to account for some of the accounting issues we raised above.

Adjustments to Financial Data Reported by Petro-Canada

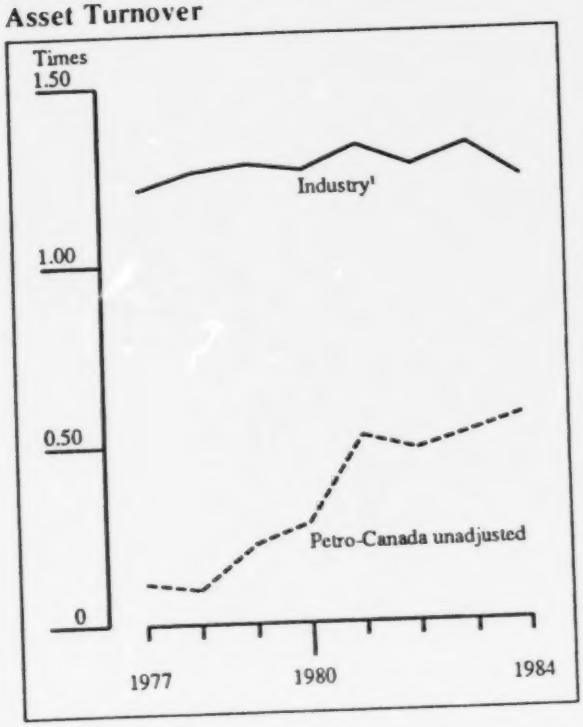
The analysis in the previous section illustrates that Petro-Canada differs in many ways from the other major firms in the Canadian integrated oil "industry." The Crown corporation exhibited relatively low profitability; this performance may be related to low revenue, the inefficient use of assets, or a high market price paid for the assets recently acquired. These conclusions are based on Petro-Canada's financial statements as reported. There are a number of adjustments which can be undertaken to recast Petro-Canada's financial data in ways which will make them more comparable to those of private-sector firms. These changes are hypothetical and illustrative only. They do, however, tell an interesting story. The impact of these changes is measured by observing their cumulative effect over the sample period on Petro-Canada's retained earnings.

The adjustments which are considered below may have an impact on cash flow or funds available for re-investment. Alternatively, they may affect only reported profits.

Given the actual investment decisions made by Petro-Canada, any adjustments which affect cash flow (or funds available for reinvestment) such as the payment of dividends or the use of market-determined interest rates would necessitate infusions of new capital. We have not made any analysis of how Petro-Canada would fund this capital and thus what the resulting capital structure would look like. Our analysis only demonstrates that for the adjustments considered, all but one reduced retained earnings and hence would require offsetting increases in capital.[18]

Chart 4-14

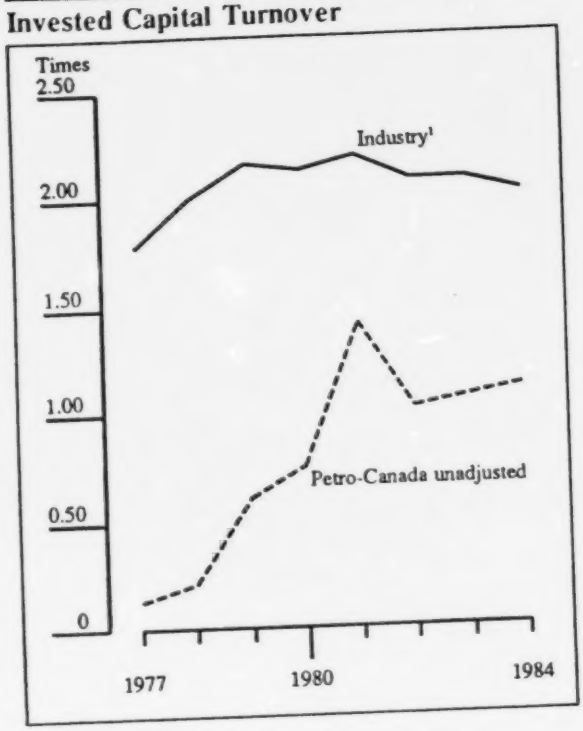
Asset Turnover



1 See Chart 4-1.

Chart 4-15

Invested Capital Turnover



1 See Chart 4-1.

Method of Accounting for Operations

Shell, Gulf, Texaco and Imperial Oil all employ the "successful efforts" method of accounting for costs of oil and gas properties. Under this technique, costs which do not result in discovering or obtaining oil and gas reserves (i.e., "dry" hole costs) are charged off as period expenses in the accounting period when a well is discovered to be unsuccessful. Only the costs of discovering reserves (i.e.,"wet" hole costs) are capitalized and subsequently written off.

Petro-Canada uses the "full cost" method of accounting and capitalizes all costs incurred in the exploration and development of oil and gas reserves whether or not they are successful. The rationale for this practice is that all costs are necessary in finding reserves. The capitalized costs are subsequently written-off against operations. This method is used by almost all of the Canadian-owned companies.[19] If Petro-Canada or the other majors provided sufficient data in their financial reports, it would be possible to adjust for this difference in methodology. Unfortunately, the required segmented data are not available and are difficult to generate. This difference in accounting method will have an impact on reported profits but is unlikely to affect stock prices. Petro-Canada reports lower expenses, and hence higher net income than would the other major firms, even if operations were identical in every respect. Therefore, if Petro-Canada used the same methodology in accounting for drilling and development as the other integrateds, its retained earnings would be reduced over the sample period.

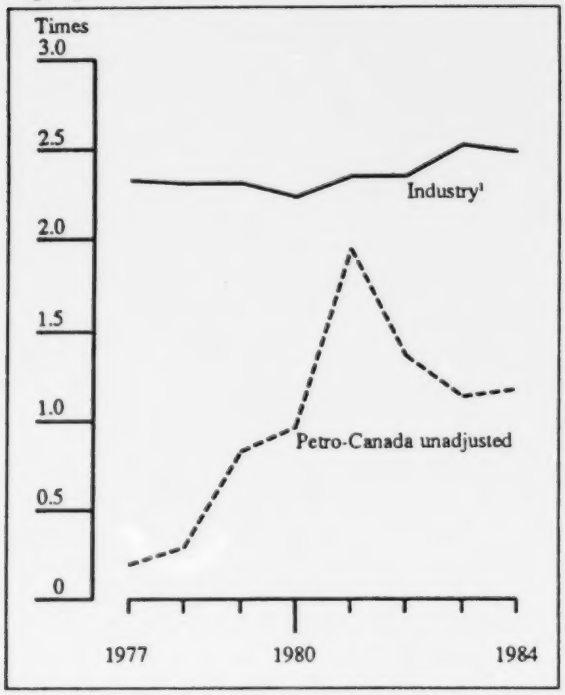
Subsidiary Preferred Shares

Petro-Canada reports US$1.25 billion of subsidiary preferred shares as a long-term liability between 1978 and 1983.[20] This amount is not included as equity and is translated into Canadian dollars at historical exchange rates.

As already noted earlier on, the inclusion of subsidiary preferreds as a prior charge will have an important impact on the company's leverage ratio. The subsidiary preferreds were translated into Canadian dollars at the exchange rate prevailing on the date of issue: CS1.1715 = US$1. The

Chart 4-16

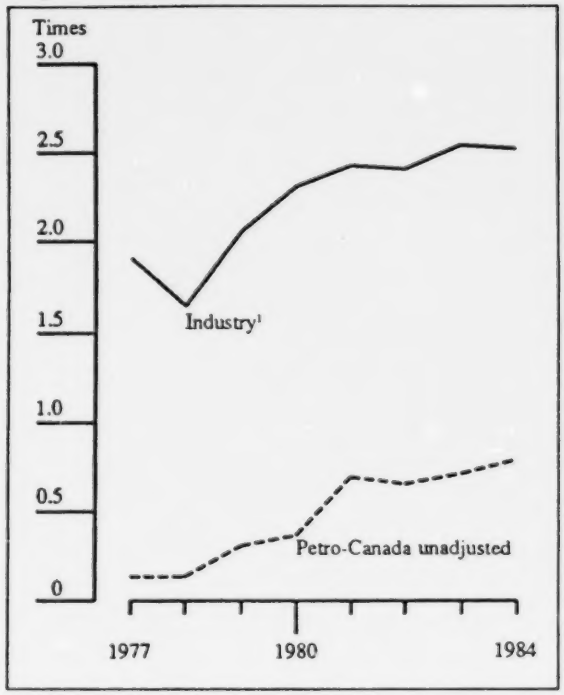
Equity Turnover



1 See Chart 4-1.

Chart 4-17

Capital Intensity



1 See Chart 4-1.

Table 4-7

The Dupont Method

	1976	1977	1978	1979	1980	1981	1982	1983	1984
Industry ROA	0.069	0.067	0.073	0.099	0.115	0.077	0.049	0.053	0.062
= Profit margin	0.060	0.059	0.065	0.085	0.099	0.061	0.039	0.038	0.052
x Asset turnover	1.151	1.126	1.136	1.171	1.163	1.250	1.220	1.275	1.190
Petro-Canada unadjusted ROA	0.005	0.011	0.004	0.009	0.015	0.010	0.001	0.004	0.017
= Profit margin	0.085	0.103	0.070	0.041	0.056	0.024	0.003	0.007	0.030
x Asset turnover	0.055	0.106	0.058	0.215	0.266	0.408	0.447	0.506	0.551

US$1.25 billion was therefore translated into C$1.46 billion.

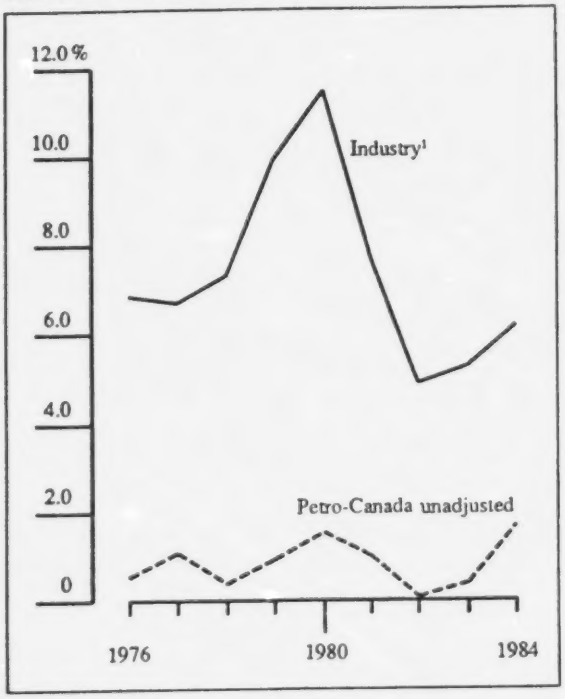
However, if year-end spot exchange rates were used instead, the fall in the value of the Canadian dollar over the sample period results in a $422 million cumulative reduction in retained earnings (see Table 4-8).

Dividends on Common Shares

Petro-Canada paid no dividends to its common shareholder (the Canadian government) over the sample period. A private-sector firm would likely pay out some portion of its net income to common shareholders each period; this is the practice of the companies in the industry.

Chart 4-18

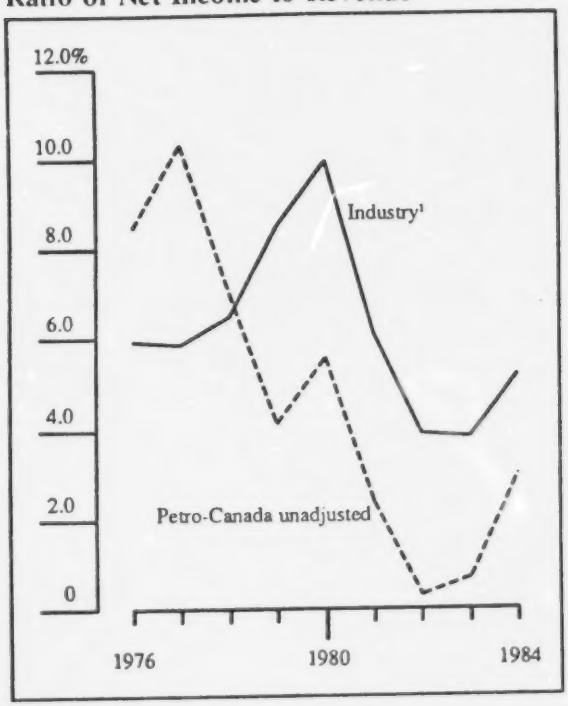
Ratio of Net Income to Total Assets



1 See Chart 4-1.

Chart 4-19

Ratio of Net Income to Revenue



1 See Chart 4-1.

Table 4-8

Effect on Petro-Canada Retained Earnings Due to Foreign Exchange Adjustment

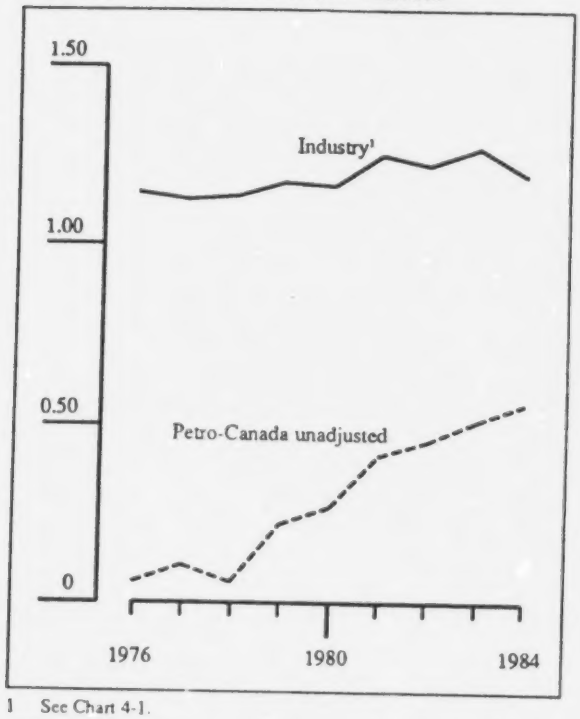
	Reported figure	Closing spot rate[1]	Adjusted figure	Effect on retained earnings
		($ Thousands)		
1978	1,464,375	1.1858	1,482,250	(17,875)
1979	1,464.375	1.1666	1,458,250	24,000
1980	1,464,375	1.1938	1,492,250	(34,000)
1981	1,464,375	1.1855	1,481,875	10,375
1982	1,464,375	1.2288	1,536,000	(54,125)
1983	1,394,085	1.2444	1,480,836	(15,126)
1984	1,312,080	1.3217	1,734,176	(335,345)
Total				(422,096)

1 *Bank of Canada Review*, various issues.

The average payout ratio for the "industry" is used to impute common share dividend payments to Petro-Canada "shareholders." If these dividends had been paid, retained earnings would have been reduced by $152 million over the sample period. This adjustment, of course, is purely illustrative since we have arbitrarily chosen the "industry" payout ratio to apply to Petro-Canada and this may not meet the Crown firm's specific requirements. In addition, the federal

Chart 4-20

Ratio of Revenue to Total Assets



1 See Chart 4-1.

government owns Petro-Canada preferred shares on which no dividend has been paid. Imputing a dividend payment to these securities would also reduce retained earnings.

Canadian Ownership Account

Funds received from the Canadian Ownership Account (hereafter, COA) during fiscal years 1981 and 1982 were ultimately included in the Petro-Canada financial statements as common equity. Since the COA funds were used to repay revolving term loans, these amounts, totalling approximately $1.3 billion, could be treated as long-term debt on which interest could be imputed. If the COA account were considered debt, the 1982 through 1984 balance sheets entries for debt and equity would be rearranged as shown in Table 4-10. This adjustment would increase debt and hence financial leverage. Interest expense would rise, causing net income and retained earnings to fall. Since Petro-Canada is not yet fully taxable, it is unlikely that it would issue debt in this large amount since the tax savings on the interest payments would not be applicable.

Debt Structure

Petro-Canada's current debt portion as a percentage of long-term debt was unusually high over the sample period (see Table 4-11). If amortization of existing long-term debt

Table 4-9

Imputed Dividends to Federal Government

	Industry average payout	Petro-Canada net income[1]	Imputed dividends
		($ Thousands)	
1976	0.393	3,333	1,310
1977	0.362	9,515	3,444
1978	0.340	13,740	4,672
1979	0.288	30,159	8,686
1980	0.274	55,749	15,275
1981	0.416	64,873	26,987
1982	0.669	10,560	7,065
1983	0.637	30,169	19,218
1984	0.430	151,449	65,123
Total			151,780

1 After dividends on redeemable subsidiary preferred shares for 1978 to 1984.

Table 4-10

Adjusted Equity in Petro-Canada

	1982	1983	1984
		($ Thousands)	
Reported long-term debt	330,686	188,408	157,049
+ COA principal	1,245,100	1,245,100	1,245,100
+ Contributed surplus	60,744	62,461	62,461
Adjusted long-term debt	1,636,530	1,495,969	1,464,610
Reported equity	3,341,848	4,010,560	4,576,579
– COA principal	1,245,100	1,245,100	1,245,100
– Contributed surplus	60,744	62,461	62,461
Adjusted equity	2,036,004	2,702,999	3,269,018

Table 4-11

Ratio of Current to Total Debt

	Petro-Canada unadjusted	Industry
	(Per cent)	
1976	4.17	10.05
1977	9.53	6.50
1978	10.93	2.79
1979	14.35	1.67
1980	21.79	0.59
1981	25.74	0.43
1982	28.47	1.08
1983	19.13	2.48
1984	29.99	2.88

on a straight-line basis over a ten-year period is considered as a "reasonable debt structure" for the entire period, Petro-Canada's debt would be as shown in Table 4-12. The cumulative decrease in the current portion of long-term debt would cause retained earnings to be increased by approximately $132 million.

Interest Expense

Petro-Canada has enjoyed low interest rates on its long-term debt, perhaps because of its status as a Crown corporation. Lenders may have viewed their loans to Petro-Canada as bearing relatively low risk, given the possibility of government intervention in the event of financial difficulties. In addition, income debentures issued to a Canadian bank in February 1977, repayable through to 31 December 1983, carried an interest rate of only 49 per cent of prime.[21]

A private firm with a AA rating would have long-term bond yields similar to those published by the Canadian Bond Rating Service (hereafter, CBRS). These rates are used in Table 4-13 to impute private-sector interest expenses for Petro-Canada. A range of interest expense levels is obtained by making different assumptions about the level of debt to which the interest rates apply. Column (1) is the interest expense on total year-end adjusted long-term debt. This assumes that the current portion is outstanding for the entire year. Column (2) uses average adjusted long-term debt between balance-sheet dates. Column (3) is the interest expense on year-end adjusted net term debt and column (4) is the average adjusted net term debt interest expense. These calculations imply that no interest is paid on the current portion of debt. The midpoint of the highest and lowest interest expense estimates is taken as the imputed interest expense for the period. The cumulative difference over the period between imputed and actual interest expense amounts to almost $130.8 million. The after-tax impact on retained earnings would depend on the tax-paying status of Petro-Canada and the corporate tax rate.

Capital Structure

A private firm may not be willing to take on the degree of financial leverage generated for Petro-Canada in the above calculations. If, instead, the average capital structure for the industry were imposed on Petro-Canada, its debt and equity would be divided as shown in Table 4-14.[22] By simply applying CBRS yields to total imputed debt in each year, interest expense would be as shown in Table 4-15. This alternative method of adjusting debt and interest expense levels would cause a cumulative $543 million reduction in Petro-Canada's retained earnings. Either way, if the Crown corporation were forced to pay commercial rates on its long-term debt, its reported 1984 retained earnings figure of $353 million would be substantially reduced by this adjustment alone.

Table 4-12

Change in Current Portion of Long-Term Debt

	Total long-term debt	Current portion	Net long-term debt	Change in current portion	Cumulative change in current portion
			($ Thousands)		
1976	240,000	24,000	216,000	14,000	14,000
1977	200,000	20,000	180,000	(400)	13,600
1978	323,516	32,352	291,164	(4,487)	9,113
1979	320,393	32,039	288,354	(15,231)	(6,118)
1980	289,193	28,919	260,274	(32,749)	(38,867)
1981	323,044	32,304	290,740	(40,831)	(79,698)
1982	410,384	41,038	369,346	(32,248)	(111,946)
1983	300,354	30,035	270,319	(217)	(112,163)
1984	269,212	26,921	242,291	(20,181)	(132,344)

Table 4-13

Petro-Canada Imputed Interest Expense

	CBRS corporate AA long-term bond yields	(1)	(2)	(3)	(4)	Imputed interest expense
	(Per cent)			($ Thousands)		
1976	10.60	25,440	n/a	22,896	n/a	24,168
1977	9.96	19,920	21,912	17,928	19,721	19,920
1978	10.16	32,869	26,595	29,582	23,935	28,402
1979	11.08	35,500	35,673	31,950	32,105	33,812
1980	13.43	38,839	40,934	34,955	36,840	37,944
1981	16.26	52,527	49,755	47,274	44,797	48,662
1982	15.80	64,847	57,944	58,362	52,150	58,499
1983	12.62	37,905	44,852	34,118	40,367	39,485
1984	13.37	35,994	38,075	32,394	34,268	35,235

Table 4-14

Petro-Canada Imputed Debt

	Industry average debt-to-equity ratio	Total Petro-Canada debt and equity	Imputed equity = Total/(1 + debt-to-equity ratio)	Imputed debt = Total – imputed equity
			($ Thousands)	
1976	0.289	627,133	486,527	140,606
1977	0.373	765,148	557,282	207,866
1978	0.183	2,604,182	2,201,337	402,845
1979	0.160	2,772,731	2,390,285	382,446
1980	0.132	2,862,049	2,528,312	333,737
1981	0.198	3,388,996	2,828,878	560,118
1982	0.269	5,136,909	4,047,998	1,088,911
1983	0.275	5,593,053	4,386,708	1,206,345
1984	0.246	6,045,708	4,852,093	1,193,165

Table 4-15

Petro-Canada Imputed Interest on Imputed Debt

	CBRS AA yield	Imputed interest expense	Change in interest expense
		($ Thousands)	
1976	10.6	14,904	9,747
1977	9.96	20,703	10,150
1978	10.16	40,929	27,801
1979	11.08	42,375	24,749
1980	13.43	44,821	21,971
1981	16.26	91,075	55,629
1982	15.80	172,048	121,816
1983	12.62	152,241	123,214
1984	13.37	159,586	148,262

Review and Summary

Adjustment	Effect on cumulative retained earnings
Method of accounting for operations	Decrease
Exchange rate adjustment for subsidiary preferreds	$422,096,000 decrease
Imputed common dividends	$151,780,000 decrease
Change debt structure to 10-year straight line	$132,344,000 increase
Change to commercial interest rates on long-term debt	Decrease[1]

1 The magnitude of this adjustment is $130,775,000 x (1 – corporate tax rate).

The magnitude of the effects of these adjustments on retained earnings is large. This confirms that Petro-Canada's reported results are highly sensitive to its accounting methods, its ownership status, and its current non-taxable position. Over time, as the company begins to be in a taxable position, some of these anomalies will be eliminated.

Conclusion

This chapter analyses the financial ratios of Petro-Canada compared to other firms in the integrated oil industry with a view toward measuring the performance of the Crown firm. Since the accounting statements present information on the stewardship of management, it was anticipated that a financial ratio analysis could be used as an evaluation and control technique.

Unfortunately, Petro-Canada's financial performance as measured by the set of financial ratios used in this chapter does not provide an unambiguous conclusion; comparisons of Petro-Canada with other firms in the industry are compromised by non-comparability of accounting methods and the unique financial situation of Petro-Canada as a Crown corporation.

In addition, the impact of adjusting Petro-Canada's financial data to put it on a similar basis as the industry was analyzed. These adjustments were illustrative and led to reductions in retained earnings.

5 Accountability, Control and the Evaluation of Performance

Introduction: The Principal/Agent Problem

In the previous sections, we have examined four periods in Petro-Canada's life, concluding that the motivations for the establishment of the firm were mixed and may have changed in its brief existence. We also saw a possibility that the firm used its role as a "window on the industry," and its role as a policy advisor to advance policies that were of benefit to the firm. In Chapter 3, we saw that the announcement of the formation of Petro-Canada was likely viewed by apprehension by investors in competing oil companies. Chapter 4 was devoted to examining Petro-Canada's comparative financial performance; the conclusion here being mixed – there being some evidence of inferior performance on the part of Petro-Canada but evaluation was difficult since Petro-Canada did differ from its competitors in significant ways.

It is clear that the government (or at least the Cabinet) has much information available for it to evaluate and control Petro-Canada. However, the process of evaluation and control is neither transparent nor obvious. Can the managers of the firm use the policy process to establish goals, say a movement into downstream activities inconsistent with "social" goals? If the numerous financial facts that we have examined are ambiguous, how are the managers of the firm to be evaluated for their stewardship of the assets entrusted to them?

We therefore turn to an examination of the process of control and evaluation of Petro-Canada. In order to evaluate the existing mechanisms and recommend changes we begin with a general discussion of the problems inherent in the evaluation and control of public corporations, where the public entrusts the government to delegate control over some assets to a set of managers – known in the literature as the principal/agent problem.

As the preceding chapters suggest, the central issues of public enterprise are obvious – how are the managers of the public enterprise controlled, held accountable and evaluated as to their performance? These issues are not unique to public enterprise but are central to all areas of the economy where some principal delegates decision-making power over some asset to a manager, trustee or agent. With delegation, differing interests between the principal and his agent and because monitoring is costly, the principal's desires (e.g., maximize profits) may not be totally adhered to by the agent. Thus the principal establishes control over the agent's behaviour, monitors performance and introduces incentive contracts. Thus controls exist over financial intermediaries and lawyers who act in a fiduciary responsibility for depositors and clients; profit-sharing schemes exist for employees so that they will have a greater incentive to maximize the owner's return; franchise operations ensure that the operator has the same incentive as the franchiser to maintain quality and the brand name; crop-sharing arrangements are designed for tenant farmers so that they do not erode the landlord's land.

All of these schemes involve a practical solution to the problem of the principal delegating control over his asset to an agent when outcomes are uncertain, when the agent and principal have different objectives and the principal cannot costlessly monitor the agent's performance. The solution is to induce the alignment of the objectives of the agent with the objectives of the principal. In so doing, the self-interest of the agent to maximize his own welfare leads to a maximization of the principal's welfare. In addition, rules can be developed to lead to the optimal level of risk-sharing between the principal and the agent. All these controls involve some system of monitoring the agent's performance and some form of analysis to decide when the agent has shirked his duty. This problem is not trivial because increased monitoring is costly and it is not obvious when poor performance is due to the nature of the business or to an agent's misbehaviour.

The principal/agent problem is not new to economics, most PhDs trained in the 1960s learnt the solution to the sharecropper problem. In addition, all industrial organization economists learnt Berle and Means' (1932) hypothesis – that the divorce of corporate ownership from corporate control led managers to maximize their own utility function which might not (unless various incentive schemes were introduced) have profits (shareholders' wealth) as an argument.

The growing literature on the principal/agent problem recognizes that most organizations experience some form

of this problem. For example, in large corporations, how can middle managers and production-line workers be "controlled" so as to minimize any deviation from the work desired by the owner, when monitoring the effort of the workers is neither easy nor inexpensive?

Crown corporations, provide a more complex example of the principal/agent problem. We call it a double principal/agent problem. The ultimate owners, voters/taxpayers, elect representatives, here the federal government, as their agents over a wide area of collective responsibility. That agent then establishes a Crown corporation with itself as principal and the Crown corporation as agent in a specific area. This double principal/agent problem involves many distinctions as opposed to the "usual" principal/agent problem appearing in the literature.

The "usual" principal/agent problem consists of a situation where the principal has a single-valued, measurable, objective function and the nature of the problem is to have this objective function maximized by the agent. The solution to the problem involves some form of incentive contract or profit-sharing scheme so as to induce the agent to share the principal's objective.

The case of Petro-Canada is clearly more complicated than this standard problem.

First, the issue of accountability and control of a Crown corporation is complicated by the double set of principals – the government and the voters/taxpayers. The "intermediary" in this problem – the government- need not act in the best interests of most voters (the ultimate principals) but may attempt to control the Crown corporation for the government's own short-run political concerns.[1] Second as we emphasized in Chapter 2 in the case of Petro-Canada, the "intermediary" the federal government, has delegated some policy setting to the agent. Third, also as we analyzed in Chapter 3, the agent (Petro-Canada) is expected to act as a source of information and advice for its principal as well as altering the legal environment in which the agent competes with other firms. Fourth, Crown corporations in general and Petro-Canada in particular have multifaceted objectives, some of which, it is argued, are non-quantifiable:

> The goals of a national oil company cannot all be quantified and the evaluation of performance is thereby made more difficult . . . In the final analysis, the overall assessment of performance against the full policy objectives for the corporation remains a subjective matter. The temptation to develop ostensibly objective, but artificial, measures must be resisted.[2]

Finally, the discipline of the stock market which exists for private-sector firms does not exist for Crown corporations.

This complicated multifaceted objective function, the two-tier level of ownership and control and the absence of stock market evaluations make formal economic analysis of the issues difficult. The existing literature on the principal/agent problem does not normally address these issues. Berkowitz and Kotowitz (1985) survey this literature, discuss these problems and make a number of recommendations. We therefore will not undertake a complete analytic examination of the issues of control and accountability within the explicit framework of the principal/agent problem. Instead we will utilize the themes and findings of that literature to address the problem of proper evaluation and control schemes for Petro-Canada.

Evaluation and control are necessary for two purposes:

1) to determine if the managers are carrying out the objectives of the principal(s), and

2) to determine if the managers are efficient (i.e., minimize the cost of attaining given objectives).

These two purposes must be analyzed separately. The first involves management's efforts in carrying out the principal's objectives and not deviating from these objectives. The second goal of monitoring is to ensure that whatever goals are being set by the principals, the most efficient means of carrying out these wishes are being used by managers.

It is crucial to distinguish between "inefficient" goals which may be the desired social purpose of the Crown corporation and inefficiency in carrying out these goals.

Mechanisms must be in place to communicate the principal's wishes to management as well as evaluation schemes for ex post examination. For example,[3] the principal may wish to have the firm (i.e., its managers) spend most of its efforts searching for offshore oil deposits. The managers may however feel that this is a risky venture and that failure will shed bad light on them. As a result, managers may attempt to frustrate the principal's desires – lobbying that such a wish is not practical, not exploring to the best efforts possible, or undertaking other activities at the expense of such exploration.

Efficiency of Public Corporations in General

The issues of accountability, control and performance evaluation of public enterprise are not new. There are

numerous books and articles dealing with the subject in Britain, India, and many centrally planned economies. Most of these writings deal with a monopoly supplier of services which has to be induced to set correct prices and quantities. Some of these studies examine the inefficiency with which public enterprise carries out its objectives. Little attention has been addressed in this literature to the degree to which public enterprise carries out the principal's desires.

The issue to be discussed here is whether public firms are "inherently" more inefficient in carrying out any objective than are private firms.[4] If so, any control mechanism based on comparisons with private firms is doomed for it will always be impossible to monitor the agent's performance and evaluate it against some "efficient" standard. It would appear (a priori) to us to be self-evident, following the above discussion of the principal/agent problem, that inefficiency is inherent in any control structure, the degree of inefficiency depending upon the effectiveness of controls and monitoring. Public firms would suffer from inefficiency insofar as their performance is more difficult to evaluate because of multiple and social goals, and because of the non-traded nature of these firms' capital.

Our presumption is that control systems can be devised to yield efficient operations for public firms. These control systems which attempt to substitute for capital market forces must then provide information and include both ex ante approvals and ex post evaluations.

Petro-Canada has little market power. In the refining and marketing spheres, the Crown firm is but one of a number of actors. Many firms have hydrocarbon reserves and leases. Petro-Canada is not a monopolist (although it is a large player). Petro-Canada had a major share of exploration activity off the East Coast and in Northern Canada, this presence, however, yields no market power to the firm. Therefore, unless Petro-Canada were unilaterally to set prices in wholesale and retail oil product markets lower than those that would exist in its absence, market forces would determine Petro-Canada's sales and revenues.[5]

We assume that Petro-Canada sets prices in accordance with traditional market forces,[6] and that the issues in the public enterprise literature dealing with the setting of "correct" prices are irrelevant to our task. What is relevant in this literature is any inherent inefficiency of operations for Crown corporations.

Borcherding et al. (1982) have recently surveyed the literature which examines the relative efficiency of public and private production. They assess why there could be an efficiency differential between public and private provision of goods and services. These reasons are:

1) there are fewer incentives for the owners of public enterprises to monitor the activities of their agents and hence these agents may engage in non-cost-minimizing activities;

2) since the "bottom line" is not of central importance in the operations of Crown corporations, the managers of such firms will engage in "pay, power and prestige," in essence, waste resources on goods and services which make the agent, not the principal better off (e.g., excessive staff, a corporate jet, lavish furnishings etc.); and

3) the absence of ownership transferability means that there is never a market evaluation of the value of the firm and thus the value of the firm need not be maximized.

To these can be added other potential sources of inefficiency:

4) the managers of the public firm need not fear takeover bids and hence can be insensitive to cost-minimizing policies, and

5) in not attempting to maximize profits, the managers may well use resources to the point that their marginal value product is less than their cost.

Critics of these inefficiency arguments suggest the following:

1) waste is never to anyone's benefit, so if the public cost of service provision is high, it is because of the higher transaction costs of using collective decision making (i.e., public firms) or for income transfer purposes;[7]

2) competition in the product market can be an effective substitute for the absence of the transferability of ownership rights;[8] and

3) public firms yield different "services" than private firms.[9]

To these arguments can be added the following:

4) professional managers move on to other positions and thus will not knowingly waste resources since their next job is dependent on their present output,[10] and

5) large private and public corporations are similar; only the top officials meet major objectives (e.g., maximize profits), other managers do their job, competently or incom-

petently depending on the firm's internal incentive structure.

The reasons for the inefficiency of public enterprise presented in Borcherding et al. can be discussed from the viewpoint of the principal/agent literature to determine whether they are "inherent" or due to some problem of evaluation or compensation which could be rectified.

1) Fewer Incentives for Owners to Monitor or Gather Information

First, the government may not wish to monitor performance because of the inherent difficulties in gathering information. The government may not wish to shed light on any short-run political use of the public enterprise and thus will insist that monitoring is unnecessary.[11] Second, the ultimate owners, the voters/taxpayers, cannot individually bear the costs of monitoring and if the government (their collective agent) does not effectively monitor, the ultimate principal has little guide to effective control. This problem is not an "inherent" dilemma but one which suggests a more open evaluation procedure providing information to voters/taxpayers.

2) No Bottom Line

Regardless of the lack of the single objective of profit maximization for Crown corporations, it should be possible to develop objective control measures for each of a number of objectives. We turn to this concern in detail later in this chapter.

3) Absence of Ownership Transferability

The absence of a market for the public corporation's equity is a real impediment to an independent evaluation of management and hence to efficiency. The lack of an independent, instantaneous evaluation of management efforts (i.e., the stock market) suggests that alternative ex post evaluation schemes must be implemented. Ex post evaluation by comparing forecasts and actual performance as well as comparing Crown corporations to private-sector competitors provides some evaluation of management's efforts, an evaluation which the stock market provides for private market firms. In Chapter 4 we have noted the difficulty in utilizing "normal" financial ratios for a definitive evaluation of performance. We therefore later propose ex post auditing and comparative expense analysis.

4) No Takeover Bids

The absence of takeover bids is linked to (3 above) the absence of ownership transferability and is also important. Ex post evaluation schemes are thus necessary to attempt to induce efficiency.

5) Inefficiency

It follows from points (2) to (4) above that public corporations may tend to be inefficient. However, *any inefficiency of public enterprise depends on the nature of the evaluation and monitoring schemes put in place.* To ensure efficiency, alternatives to the constraints imposed by private markets must be developed.

In their survey of the empirical evidence, Borcherding et al. find that in 44 of 50 studies, public firms had higher costs of production or service than comparable private firms. These studies encompass (among others) airlines, banks, bus services, electric utilities, hospitals, housing and garbage collection.

The authors however conclude that "given sufficient competition between public and private producers . . . the differences in unit cost turn out to be insignificant."[12] The key in this empirical literature appears to be to provide some product-market competition and some market-based incentive scheme in order to induce managers of public corporations to be efficient. This is a crucial finding for the analysis of Petro-Canada.

Based on this evidence, we conclude that *in those areas where Petro-Canada competes with private firms, and where formal thorough evaluation procedures exist, Petro-Canada is likely to act efficiently.*

The Setting of Objectives

Managers are "good" if they are efficient and follow the goals the principal wishes followed. In the previous section we examined in general the question of efficiency, here we examine the procedure of goal setting. In the principal/agent literature, the goal of the principal is profit maximization, the goal of the agent is to maximize his utility, the difference between these two objectives results in inefficiency. In the case of Petro-Canada, the objectives established by the direct principal are multiple, vague, somewhat in conflict with each other and have changed over time. As a result,

attempting to evaluate whether management has met the direct principal's objectives is difficult.

The legislated objectives of Petro-Canada are given in Section 3 of the *Petro-Canada Act*:[13]

> The purpose of this *Act* is to establish within the energy industries in Canada a Crown-owned company with authority to explore for hydrocarbon deposits, to negotiate for and acquire petroleum and petroleum products from abroad, to assure continuity of supply for the needs of Canada, to develop and exploit deposits of hydrocarbons within and without Canada in the interest of Canada, to carry out research and development projects in relation to hydrocarbons and other fuels, and to engage in exploration for, and the production, distribution, refining and marketing of, fuels.

These objectives are not terribly instructive as to the specific social purposes of the corporation, and therefore of little value in establishing performance criteria.[14] For a clearer notion of these objectives, we turn (as in Chapter 2) to the December 1973 address to the House of Commons by then Prime Minister Pierre Elliott Trudeau[15] and to the March 1975 speech given by Donald Macdonald, at the time Minister of Energy, Mines and Resources, when Bill C-8 was read for the second time.[16] Based on these speeches, we conclude that the main objectives originally assigned to Petro-Canada are the following:

1) exploration for conventional oil and gas in the provinces and in areas exclusively under federal jurisdiction;

2) assist and participate in the research and development to develop an in situ technology for oilsands;

3) invest in the development of oilsands deposits using existing technology;

4) act as an agent for the Crown in state-to-state transactions (principally, oil imports);

5) increase the Canadian presence in the petroleum industry; and

6) act as a "window on the industry."

One problem with many of these objectives is that it is difficult to evaluate when performance is "good" or "not good." For example, increasing the Canadian presence in the petroleum industry can be done through wise, economic takeovers as well as through extravagant purchases. Another difficulty with having vague objectives is that the agent might use the object for his own welfare, not that of the direct or ultimate principals. In Chapter 2, we have argued that Petro-Canada's substantial entry into the gasoline marketing sector was likely due to management preferences, not the direct principal's wishes (although the *Petro-Canada Act* does include entry into marketing as an objective of the firm). Finally, having multiple objects allows the agent to trade these off one against another. Five of the specific objectives involve expenditure of funds; increasing funding for any one of the five thus implicitly implies reductions in the others.

While we are relatively sanguine about the possibility of constructing performance measures to evaluate the efficiency of Petro-Canada's behaviour, we are less optimistic about the ability to measure or even determine whether the firm (the agent) has fulfilled its mandate or is itself able to alter the mandate for its own purposes.

Policy Setting

Chapter 2 of this study identified four periods in Petro-Canada's history. What caused concern was Petro-Canada's dual role as policy setter and industry player.

We see real potential distortions in having the agents set policy for the principal. This does not represent just an academic nicety. We are not impressed with government assertions that all that Petro-Canada has done or will do is in the public interest, and if it were not, that the government would then control the firm's direction. Policy setting by the firm is at odds with the "window-on-the-industry" objective. That latter objective has the firm provide better data for policy makers. But, as argued in Chapter 2, when the source of that data is also a policy advisor and policy setter, there is a real threat of biased information and policies which are in management's interests, and not necessarily in the interests of the direct or of the ultimate principals.

This is not to imply that Petro-Canada managers are malicious or less than honest. It simply says that managers (agents), have different objectives than do the principals and given a delegated broad mandate, these agents can maximize their objectives at the expense of the principals'. All the evaluation procedures we will discuss are in jeopardy if the basic policies under which the firm operates can be altered by management furthering its own interests.

There is a clear trade-off between using a flexible, easy-to-adjust instrument such as Petro-Canada and the ability to control that instrument. Alternative instruments – say a subsidy for offshore East coast drilling – are less flexible but

but more precise. The drilling subsidy will not purchase gas stations.

How can the government and its principals, the voters/taxpayers, rest assured that policies are not being set so as to maximize the interests of the crown firm's managers? First, all of the evaluation and monitoring tools that we will suggest in this chapter are aimed at preventing such a result. Second, we would suggest that Petro-Canada's objectives be more precisely worded in its enabling legislation. Finally, we suggest putting an end to the "window-on-the-industry" function as well as the use of Petro-Canada as a policy setter. Others[17] have pointed out the unnecessary role of Petro-Canada as a provider of information in the oil and gas industry which no longer resembles that of the early 1970s.[18] In addition, the potential for conflicts of interest arise when Petro-Canada acts as a policy advisor. Ending this role would eliminate a major source of conflict between the interests of managers and those of the principals.

Monitoring, Allocation and Compensation

MacDonald (1984) classifies the literature on the economic theory of agency into three categories – *monitoring* activities to increase the information flow to the principal; *allocation* of activities to decrease the negative impact of the agent's self-serving interests on the principal's income; and finally *compensation* principles to make incentives more compatible.

We begin by examining the general issues of monitoring, allocation and compensation principles within the double principal/agent problem which underlies a Crown corporation such as Petro-Canada.

Monitoring

Some of the economic theory literature on the principal/agent problem emphasizes the role of monitoring or information production activities. The inability of the principal to monitor costlessly the agent's efforts (as compared to the agent's ability) is one of the key attributes of the principal/agent problem. Various monitoring mechanisms have been identified in the literature.[19] We must analyze these mechanisms to see first, if they are practicable for Petro-Canada and second, if they are of use to *both* principals – the federal government and the voters/taxpayers.

One measure of the agent's effort is the output achieved. However, numerous problems exist with using output as a measure of management success, especially for an analysis of Petro-Canada. First, output is susceptible to random influences outside the agent's control. These random influences include oil price swings, the randomness and frugality of oil deposits in nature, etc. Second, much of Petro-Canada's efforts, exploration off the East Coast for example, is highly risky, with the results only known many years hence. Output-based criteria for certain Petro-Canada activities might then be difficult if not impossible to use in evaluation. In addition, using hydrocarbon output as a performance measure may have the negative impact on the agent of reducing the acceptance of projects with long lead times and reducing other risk-taking activities. As a result, information on the agent's effort, not just on output, is of value to performance evaluation.[20]

The very threat of evaluation can induce the agent to undertake activities to minimize the negative effects on him of a poor evaluation thus increasing effort and efficiency. At the same time, however, evaluation can also make the agent unwilling to take on risky activities for fear that failure will be considered by the principal as due to the fault of the agent.[21]

Since monitoring involves the expenditure of resources, there is some need to balance monitoring's costs with its gains. The costs of monitoring involve the actual financial costs plus any undesirable impact on the agent's behaviour.

Other kinds of information systems are also valuable, namely those that make the agent better informed and therefore better able to make decisions. There are differences between information systems designed for the principal's use in evaluation and those designed for the agent's use (i.e., corporate decision-making).[22]

From our perspective of Petro-Canada, the relevant questions are the information systems, monitoring and evaluation schemes which are or could be put into place to allow the federal government and voters/taxpayers to assess adequately management efforts and results.

Allocation and Compensation

Allocation and compensation rules can be introduced to attempt to align the agent's incentives with the objectives of the principals. We do not survey the vast results extant in the literature: these are summarized in Levinthal (1984) and Berkowitz and Kotowitz (1985).

The essential principles for any discussion of Crown corporations in general (as enumerated in Berkowitz and

Kotowitz 1985) and thus for Petro-Canada in particular, are that the "normal" private-market schemes which rely on bonus or stock-market-option compensation schemes are not available. Moreover without publicly traded shares, there is no external market evaluation of management performance in Crown corporations as exists in the stock-market performance of private companies' shares.

The principles of the allocation and compensation schemes proposed in the literature are to reward management for the additional effort which is not in the agent's self-interest to provide, to reward management for cost reductions and to prevent shirking and excess costs. In the literature, these compensation schemes are crucial in producing efficient results within the context of the principal/agent problem. The difficulty in implementing similar compensation schemes in the public sector has led academics to consider alternatives – tournaments or contests for managerial positions (Berkowitz and Kotowitz 1985); and subsidies and perks (Sappington and Sibley 1984). These schemes are all designed for a simple world of a single measurable objective for the public firm, yet they are relatively complex.

Examples of the various theoretical compensation and pricing schemes designed specifically to induce the manager of the public firm to price correctly and minimize costs are as follows:

1) Rees (1968) – link managerial salary to profit and impose pricing rules to prevent monopoly pricing;

2) Crew, Kleindorfer and Sudit (1979) – constrain the firm's price increases to correspond to changes in total factor productivity;

3) Bos (1978) – constrain the firm to minimize a Laspeyres price index subject to a minimum profit constraint;

4) Scott (1978) – link managerial pay to "volume profits": the change in profits evaluated at last period's prices; and

5) Finsinger and Vogelsang (1981) – allow the manager to appropriate cost reductions.

Gravelle (1982, p. 101) has examined these theoretical schemes to see if they eliminate "X-inefficiency" or the difference between potential and actual performance. His conclusion is disappointing for all those who hope for simple performance measures based on observable data:

> none of the mechanisms suggested will ensure that managers of public firms will set allocatively efficient prices and produce X-efficiently.[23]

The basic reason is simple, without giving managers the full appropriate returns to the effort to reduce costs, such effort is not forthcoming.

In specific practical terms, it is difficult to consider schemes which would allow the managers of Petro-Canada to appropriate the benefits of all cost reductions (and how would this be measured?) or to link managers' pay to volume profit. Moreover, most of these proposed incentive schemes are addressed to *monopoly* public enterprise, not a label we would put on Petro-Canada.

We feel that it is possible to develop evaluation schemes to examine the efficiency of operations. These schemes, discussed later in this chapter, centre on one core – the comparison of Petro-Canada's costs with those incurred by private-sector firms. We ignore Gravelle's warning that private-sector firms may also be inefficient, assuming first, that the public firm should, at least, be no worse than private-sector firms and second, that at least private-sector firms face capital market tests.

We must emphasize that the discussion in this section has dealt only with the efficiency of carrying out objectives, not whether the firm actually carries out the principal's goals.

Objectives and Existing Control Mechanisms

To summarize, the keys to the federal government's (the direct principal) role with a Crown corporation such as Petro-Canada are:

1) the monitoring of activities;

2) the evaluation of performance (allocation and compensation); and

3) the setting of objectives.[24]

These are complicated and interwoven since objectives may change, and multivalued social objectives unavoidably involve trade-offs. As a result evaluation is difficult and costly. The agent can engage in opportunistic, self-serving and rent-seeking behaviour if the rules are vague, and therefore the performance criteria variable.

In addition the double principal/agent problem exists. The ultimate principal, the voters/taxpayers, have to judge the performance of Petro-Canada as well to ensure that the government has not used the firm for its short-run political

objectives. Thus, the setting of objectives, monitoring, and evaluation must involve *public* dissemination of information in a bi-partisan setting.

Before turning to an examination of the problems of control in each of these areas (monitoring, evaluation and objective setting), we turn to an examination of the control mechanisms present in the *Petro-Canada Act* and other instruments available to *both* principals (the government and taxpayers/voters).

Existing Control Mechanisms

The *Petro-Canada Act* and the *Financial Administration Act*[25] include provisions for four direct mechanisms of control, a fifth, at present indirect means of control, rests in the House Standing Committee on Energy, Mines and Resources.

First, the Governor-in-Council must approve Petro-Canada's annual capital and operating budgets.[26] Petro-Canada produces an annual budget including a five-year perspective, in the early fall of each year (or at least eight weeks before the end of the year as per the *Financial Administration Act*). Two signatures are required for approval – those of the Minister of Energy, Mines and Resources, and the Minister of Finance. After consultations with EMR, the initial budgets, operating and capital, are rewritten in effect jointly by Petro-Canada and EMR. The budgets are then examined by the Crown Corporations Directorate at Treasury Board. Petro-Canada cannot spend any money without approval, nor can it increase the budget on any major subitem by more than 25 per cent without approval as well. Some fungibility must be allowed between subitems because of the difficulty of forecasting budget items due to the uncertainty of drilling costs, ice conditions, etc.

Second, and in addition to these ex ante approvals, annual external audits of financial statements and any other information desired by Treasury Board must be prepared and provided to the Minister of EMR. This auditor is appointed by the Governor-in-Council after consulting with the board of directors of the corporation (if the auditor is not already the Auditor-General). The *Financial Administration Act* also requires a "special examination" of the Crown corporation at least once every five years. This examination is designed to analyze efficiency and the 'safeguarding' and control of assets. An external auditor is to prepare the examination and a subsequent report to the directors of the corporation. If the auditor is of the opinion that the examination should be brought to the attention of the Minister, he can do so, after consulting with the corporation's board. If the auditor is of the opinion that the examination is of interest to Parliament, he/she would prepare a report for inclusion in the annual report of the corporation, after consulting with both the board of directors and the Minister (*Financial Administration Act* [143]).

A third method of control is that the Governor-in-Council may issue written instructions to Petro-Canada concerning specific policy directives.[27] Such written instructions (directives) have been issued on a number of occasions.[28]

A fourth method of accountability, monitoring and control lies in the use and composition of the firm's board of directors. The revised *Financial Administration Act* adds new roles and responsibilities to this board, making the board's function more similar to that of boards of private firms. Until this year one essential distinction – the presence of civil servants – has characterized the board of Petro-Canada as compared to boards of public corporations (and NPCs) in most other countries.

A fifth and more indirect control mechanism is contained in the proceedings of the House Standing Committee on Energy, Mines and Resources. High-ranking officials of Petro-Canada occasionally appear at the committee's request (as recently as June 1986) but not on any regular basis. Petro-Canada officials were not asked to appear before the predecessor committee in the two-and-one-half-year period extending from April 1977 to November 1979.[29] We return to this committee later in this chapter as we feel that it or some similar institution is necessary for an adequate control and evaluation system.

In examining these control mechanisms, the subtle nature of the relationship between Petro-Canada and the federal government must be kept in mind. As Wilbert Hopper once said:

> [Petro-Canada is] very sensitive to government policy statements on broad guidelines of energy policy, and we attempt, obviously, in our activities to follow these broad guidelines and be sensitive to them.[30]

Nonetheless, an understanding of the activities and objectives of Petro-Canada can be achieved only if the mechanisms and exercise of control by the federal government are unveiled and their effectiveness assessed.

Capital Budgeting Process

The *Petro-Canada Act* prevents the firm from spending any money without the authorization of the Governor-in-

Council; in addition, fungibility between items in the budget is limited under the *Act* and further limited under each Order-in-Council.

In order for the capital budgeting process to be valuable in the control/evaluation process in our double principal/agent problem, the following normative principles should hold:

1) information must be available to the government and the public in significant detail;

2) the information should be available sufficiently far in advance of any decision deadline;

3) there must be knowledgeable staff evaluating the budgets;

4) the process should be "sacred" (i.e., few deviations allowed); and

5) there must be an ex post audit.

We have examined the major Orders-in-Council[31] showing the capital budget for each year (these are excerpted in Appendix C). Not only is there a complete lack of detail in these budgets available to us, thus making evaluation impossible, but there also seems to be a worrisome trend to reduce the informational content of the relevant Orders-in-Council.[32] A large amount of publicly available detail on ex ante budgets is not feasible since the firm operates in competition with private firms who make few pronouncements on their capital budgeting plans.[33] Substantial detail is provided in confidence to the officials at EMR and the Cabinet who evaluate the proposed program. From our interviews with government and company officials, it is clear that even "too much" information can be made available in too short a time – Petro-Canada lobbies the government to find favour for its budget and its desires (as do all firms), providing "son et lumière" shows to back up its requests. At the time of writing, there are two people at EMR who evaluate these budgets. We have not been able to examine the capital budgeting process in detail since Petro-Canada's submissions to the government were not made available to us on the grounds of confidentiality, and so we can only provide general remarks.

Since funds cannot be spent by Petro-Canada without approval, the budget should be an important form of control. Since the capital budget for the next fiscal year (on a calendar year basis) is never ready before the Fall, there is not much time for a limited government staff to examine the detailed plans of a multibillion-dollar company. The capital budget has moreover been subsequently amended in many of the years in many cases on short notice [34] and perhaps with inadequate government analysis. In a number of cases, the amendments are substantial; little or no notice has been given. Therefore, this control mechanism may not be as effective as it could be. Each year Petro-Canada attaches a corporate strategy to its proposed capital budget. These strategies announce the thrust for the future years. For example, a strategy might be announced to acquire downstream capacity. The government is then put on notice that a specific direction is to be taken but the specific proposed acquisition cannot be announced to a wide audience. The control mechanism is Cabinet oversight on major acquisitions. However, acquisitions must, by nature, be fast moving and secretive, thus except for several Cabinet ministers, a major acquisition may never be vetted outside the firm. It is true that a similar process exists in private firms – secrecy and haste – but with one crucial difference – private firms have the market evaluate their actions ex post, this ultimate control mechanism effects ex ante decisions. An equivalent ex post evaluation is necessary for acquisitions made by public firms.

A flaw in the present process is that the information available to the public (i.e., the Orders-in-Council and the Annual Reports) are insufficiently detailed and sufficiently inconsistent and conflicting to make analysis difficult. For example, it is impossible to determine from the Annual Reports how much money Petro-Canada has spent on offshore East Coast exploration, or how much is invested in downstream activities.

The Board of Directors

The amended *Financial Administration Act*, requires that each Crown corporation have a board of directors, each appointed by the Governor-in-Council [114(1)][35] for a term not to exceed three years, reappointment is possible [114(3)], directors are subject to removal by the Governor-in-Council and no more than one-half of the directors should have their terms expire in any one year [114(1)]. In addition, the majority of the board cannot be officers or employees of the corporation [115(2)]. The board has the power to appoint officers of the corporation [114(7)]. The remuneration of directors, chairman and Chief Executive Officer is established by the Governor-in-Council [117(1)]. The board is responsible for the management of the businesses, activities and other affairs of the corporation [118], can make by-laws [113], and must act honestly and in good faith with a view to the best interests of the corporation and "exercise the care, diligence and skill that a reasonably prudent person would exercise in comparable circumstances" [124].

In short, these provisions of the revised *Financial Administration Act* impose similar requirements on Crown corporations' board of directors as are common for publicly held private corporations as well as imposing the duties and standards of the private sector on the acts of the directors of public enterprises. The board in private corporations is the shareholders' direct representative in ensuring that management acts in the shareholders' interests. Gracey (1977) states that having civil servants on the boards of Crown corporations is unique to Canada and while never enunciated, there appear to be three reasons for these appointments:

1) to bring a special expertise to the board;

2) to act as a communication link between the board and Cabinet; and

3) to represent a particular departmental interest before the board.

The provisions of the *Financial Administration Act* were not specifically aimed at Petro-Canada, although these do change details in the way in which the latter's board operates as well as establishing the responsibilities of its directors under section 125. It is clear that the government intends board of directors to become important control mechanisms for all Crown corporations. Again, we concur with the intent of the *Act*; such boards can play crucial roles, especially for Crown corporations. However, a number of elements require further discussion. First, there are clear difficulties in judging who should be appointed to such boards. The *Act* and the experience of Petro-Canada suggest that a number of key civil servants (Deputy Ministers) will be appointed, although none are at the time of writing. It is unclear whether civil servants bring special expertise of the oil industry to the board, they clearly do represent the government's interest on the board. We are concerned with this "interest" for a number of reasons. First, these appointments raise questions of conflict of interest. As was noted in Chapter 2, Petro-Canada operates in a number of joint ventures. The board of directors is then privy to commercially sensitive information about Petro-Canada and about other industry firms as well.[36] Deputy Ministers make policies such as tax and subsidy rules which affect all firms. If these Deputy Ministers also sit as directors of Petro-Canada, they are privy to information which they, as Deputy Ministers, cannot use. These board members may find that conflicts arise because of their position and thus their incentives to function in one of their tasks may alter. The Norwegian NPC (Statoil), is expressly forbidden to have civil servants on its board of directors. The government's express wishes can be made known by other means of control – directives are the major alternative but the capital budgeting process, the new reporting and audit mechanism and reports tabled in Parliament can also be instrumental in ensuring that the government's wishes are known and acted upon by the firm.

Directives

The purpose of directives from Cabinet (i.e., the Governor-in-Council) to the Crown corporation is to ensure that the government's policy objectives are met. Of course, the objectives contained in the enabling legislation, government pronouncements and the influence of the board of directors can all be used to force the government's policies on the firm's management.[37] In addition to these forms of influence, the *Petro-Canada Act* and the *Financial Administration Act* force the firm to obey government policy directives communicated to its management in writing.[38] Policy directives are also useful for they can act as signals to the public as to the direction that the government wishes the Crown corporation to take. On occasion, Petro-Canada has requested that a suggested policy decision be formalized through a directive, thus signalling also to the public (and Parliament) that the suggested action is one that the firm would not necessarily have undertaken on its own. A good example is the CANMET process, the subject of the last directive issued to Petro-Canada. CANMET is a new hydrocracking process developed by EMR through in-house research. Petro-Canada was given the exclusive license for this process in 1979 and was asked to experiment with the process on a larger pilot plant at its Montreal refinery.[39] An Order-in-Council was issued specifically directing the corporation to undertake this project.[40] Our understanding is that Petro-Canada did not want to undertake the project unless it received specific directives to do so as the corporation felt the project to be uneconomic.[41]

The ability to issue directives is an important control tool for a broadly based firm with rather vague objectives such as Petro-Canada. These directives, made public, can be used to augment legislative objectives and to signal clear direction for the firm. One potential issue could be the *firm's* use of the mechanism to request directives for all investments it considers "uneconomic." This has clearly transpired, with Petro-Canada requesting directives where the government may have preferred more indirect pressures.

There could be value in having directives for all investments that are not felt to be commercially viable in the private sense. This procedure would then result in a clear definition of what is intended as the social purpose of the firm. One could also consider a division of assets, costs and

revenues between commercial investments and "social" investments. Such a division would also assist in an evaluation of managerial performance. In essence, the firm would maintain two sets of books, one containing assets, income and costs for "commercial" ventures and another set for "non-commercial" ventures. The "commercial" side of the firm could be evaluated by comparisons with other commercial firms in the industry. The "non-commercial" side could be judged by the types of criteria presented in this volume. While such a division is theoretically appealing, it is likely unrealistic and implausible for several reasons. First, what is the dividing line between "commercial" and "non-commercial" and who is to draw it? Second, how are common assets, those assets such as managers, office buildings, etc. to be included in evaluations? Third, would this type of division of assets and income statements lead to perverse incentives – management's attempts to lump common assets and riskier ventures into the "non-commercial" side? More thought needs to be given to the implications and practical aspects of such a classification scheme to determine whether it can be useful.

Parliamentary Committees

An important potential control mechanism is the use of Parliamentary committees for monitoring or evaluation purposes. At present, the House Committee on Energy, Mines and Resources can request the appearance of Petro-Canada officials (government officials and private individuals as well). There is not, however, a mandatory periodic appearance schedule. Nor does the committee have a budget or a professional staff to undertake evaluations or examine audit results.[42]

The *Financial Administration Act* does not specify the committee or committees which will be used for the annual reporting function of all Crown corporations. We would suggest that, at the minimum, all Crown corporations which relate to a similar sector be examined by the same standing committee. In addition, it is essential that departmental officials regularly appear since they have an impact on the objectives and the capital budget. Any effective use of Parliamentary committees is entirely dependent on that committee's access to professional resources to aid in the examination of the corporation. Without such a staff, the proceedings of the committee could degenerate into partisan name-calling. Redwood and Hatch (1982, pp. 35-36) give this evaluation of the British use of Parliamentary committees:

> The 1979 Parliament began the process of reforming the range and activities of select committees of the House. There are now select committees shadowing or investigating the activities of all the leading departments of state. In some cases these select committees like those in energy and transport and even the industry select committee have as an important part of their remit the right and even the duty to investigate the activities of the nationalized industries within the sponsoring departments that they monitor. A select committee has the power to choose a subject for discussion within its general remit, and the right to call for witnesses at a senior level from nationalized industries and other public bodies. In addition, it invites private sector participants to give evidence and calls for evidence from the civil servants in the sponsoring department itself.
>
> The committees can decide how long they wish to pursue an investigation, the type of questioning which they wish to pursue and the type of evidence which they will require to be published as part of their report. At the end of their deliberations on a topic they publish a formal report including minutes and a list of all those MPs forming part of the committee. The committees are cross-party committees usually with a majority representing the majority party in the house, but the spirit of the committees is to find some common ground between the members on all sides of the political spectrum and this common ground is normally found in criticising at a more detailed level the activities of the executive and its capability in executing policy. It would be more unusual for the committee to have strong views hostile to the stated government policy of the day as the MPs accept that government does have to have general policies which they are trying to implement. A select committee is more likely to be interested in whether such a policy has the outcome that the government thinks it has, whether there is intellectual coherence in the policy objectives and aims and whether the execution of policy is being conducted in the most sensible way. Some select committee reports are of an extremely high standard, producing a wealth of evidence on the way in which the executive goes about his work and at times their conclusions are most valuable. Nor are they without influence for there is a close working relationship between a select committee and the civil servants in the department being monitored and very often announcements will be made during the course of an enquiry by the secretary of state or ministers in his department, reflecting that they have been influenced in part by the evidence and the deliberations emerging in the select committee.

Such a process could be used for the annual examination of Crown corporations and would aid enormously in the control process. We are firmly convinced that an enhanced Standing Committee on Energy, Mines and Resources would prove to be a key monitoring and evaluation procedure in solving the double principal/agent problem which is inherent in Crown corporations such as Petro-Canada.

To this point we have examined the existing control mechanisms in general terms. We now turn to an explicit

examination of how the performance of managers in meeting Petro-Canada's objectives can be evaluated within two frameworks – the principal/agent literature and the existing control structure. We keep in mind the difficulty of formal, public ex ante controls given the competitive nature of much of Petro-Canada's activities.

Ex Post Audit and Evaluation

In designing useful evaluation criteria, the distinction must be drawn between the *objectives* of the firm, given by the principal and the agents *efficiency* in meeting these objectives. For example, if it is the government's decision to explore in risky offshore areas, then if the agent, Petro-Canada's managers, carry out this task efficiently, the agent should not bear the responsibility if the *objective* turns out to be flawed. Politicians, not the firm's managers should stand or fall on the fruits of risky objectives. Politicians should also bear the consequences if the control structure allows managers to set the firm's objectives.

Managers are best evaluated as to:

a) the amount of resources spent in social activities, and

b) the efficiency with which various projects are carried out.

For the first evaluation problem the government has its ex ante capital budgeting process and the ability to compare forecasted and actual expenditures. For the second evaluation problem the ex ante capital budgeting process is not terribly useful and independent ex post expert evaluations of efforts are required, such as an audit, and a comparison with the efforts and results of competitors (where competitors exist).

Another important reason exists for this independent, ex post evaluation of results. Not to attempt this independent evaluation is to make the government entirely dependent on the information produced by the firm – the information which can be used in the capital budgeting process to convince the principal (who has less information) that what the firm wants is correct.[43]

We turn to an analysis of the types of strategies useful in evaluating the roles of Petro-Canada originally defined in 1975.

Exploration

Conventional Areas

Exploration in conventional areas is undertaken by a large number of companies, including Petro-Canada. It appears safe to assume that the technology of exploration is well known, and that most inputs are available in perfectly competitive markets. The scarce inputs are leases, especially hydrocarbon-bearing leases, and there is much uncertainty as to potential finds.

Private-sector firms in the same activity would be assumed to maximize shareholders' wealth (subject to the agency problems we have been discussing, where imperfect knowledge, risk aversion, and differential impacts of taxes, royalties and bonus payments could distort incentives). However, there are some externality aspects of drilling information and risk spreading which likely lead to some form of economies of scale for larger firms or for those drilling numerous wells. What can we say of the behaviour of managers of a Crown corporation under such circumstances? They are unlikely to feel the pressures of bankruptcy (nor would the managers of, say, Imperial Oil likely feel threatened by potential bankruptcy in lower-cost conventional exploration). Managers of a Crown corporation may not however, feel the stock-market pressures that unsuccessful drilling would lead to in private firms.[44] In addition, with lower capital costs, the managers of the Crown firm may tend to drill more, or at higher cost (say, deeper) than their private counterparts. There might then be a tendency for the Crown firm to have lower finding rates and higher unit exploration costs than private firms, since this may be consistent with social objectives.[45] In addition the impacts of "inferior" performance on the salaries of the managers of Crown firms may be smaller than if the management of a private-sector firms had been responsible for a similar performance.

How do the principals of the Crown firm prevent inefficient exploration activity? Ex ante analysis in terms of a capital budgeting process, as occurs now, is clearly of value. However, the results of activities must also be examined. Ex post monitoring would appear to be relatively costless and productive for drilling in conventional areas. Standards for the industry are well known – drilling costs, depths and finds are public information. Petro-Canada should then be monitored as to how it performs relative to others. Differences can certainly occur for good reasons – riskier prospects and leases, more costly sites. However, were Petro-Canada consistently to produce results "inferior" to those of the industry, then an explanation would be required and appropriate compensation (or termination) should be ap-

plied. If the results show higher costs for the Crown firm and the explanation is the greater risk of the activities then, over time, the resulting petroleum finds should outperform the industry on average, or the acceptance of higher risk was not a rational choice. In addition to comparing Petro-Canada's ex post performance to that of other industry participants, the trend of costs and discoveries for the firm should be tracked. Specific changes in these trends should then be explained by Petro-Canada's management.

Another type of monitoring is for the government, in confidence, to compare actual results, both costs and discoveries, with expected or forecast results. The principal/agent literature notes moral hazard problems with this type of monitoring approach – unless other procedures are also implemented. In particular, forecasts could be biased downward to make results seem better and results could be manipulated to make the forecasting seem better (e.g., frequent revisions of reserves).

What agency should undertake these ex post evaluations? We are concerned that a purely departmental evaluation (i.e., one undertaken by EMR or another federal department involved in Petro-Canada's capital budgeting process, like the Treasury Board) would not lead to the correct incentives being set for all players. Any of the departments which approve the capital budget could be viewed as potentially susceptible to the rational desire to ensure that its approval appear valid ex post. Therefore, there is some incentive for such a department to overlook inadequate performance by the Crown firm as this could reflect badly on the department itself. However, the ultimate principals, the voters/taxpayers, also need information as to the Crown firm's performance.

Frontier Areas

Evaluating Petro-Canada's activities in the frontier areas is much more difficult than evaluating its activities in conventional areas precisely because its original mandate required the Crown corporation to explore where private firms would not. When social purposes reside in the objectives, how are we to judge whether Petro-Canada's management fulfills its mandate in an efficient manner? Private firms with a similar portfolio of activities, such as Dome Petroleum, have their successes and failures recorded in the stock market. Berkowitz and Kotowitz (1985) call for attempts to emulate stock-market valuations. One possible way to have this type of information is for the government to hire an independent appraiser who would evaluate the discoveries and potential commercial value of the reserves found. We recognize the difficulties in this process but it would provide objective, independent valuation data.

The difficulty is the lack of an effective standard such as the one that exists in conventional areas – other firms' efforts. As a result, there is even more of a need to monitor drilling effort and drilling costs independently of the Crown firm's own evaluation of its performance.

Research and Development Related to Oilsands Technology

The requirement that Petro-Canada expend resources on an in situ technology for oilsands extraction requires an evaluation of the correct amount to spend as well as an evaluation of the efficiency with which the technology is developed. Again, information comes from the firm, and evaluation by outsiders is difficult since the technology to be developed is new. This problem is not new – it faces governments whenever they contract for research and development effort. History is full of examples of incomplete incentives – cost overruns and inefficient production, for example, in the U.S. space and weapons programs. What is used in these other circumstances is complete expert auditing and ex post accounting.

Development of Oilsands Deposits with Known Technology

Actual development of oilsands deposits using existing technology is an easier process to evaluate than the research and development activities discussed above. Whether the pace of such development was correct or not, we would leave to the political masters to judge with the *caveat* that politicians have to rely largely on information produced by the firm. As to the efficiency of such activities, we suggest two thoughts. Development, once Petro-Canada is in a joint venture with private firms, is unlikely to have to be heavily monitored since the private firms are likely to have incentives to be efficient.[46] However, where Petro-Canada develops oilsands deposits on its own, some additional monitoring and evaluation, is warranted. We would suggest that Petro-Canada's costs be compared with those of other similar projects.

Increasing the Canadian Presence in the Oil Industry

Performance in meeting an open-ended mandate to increase the Canadian presence in the oil industry is most difficult to evaluate. Again, politicians must be relied upon to set the "correct" level of Canadianization. If voters feel that this level is too high or too low, then politicians can be

chastized; it is not the managers of Petro-Canada who should bear the fallout of an "incorrect" Canadianization policy. But, having said this, there is still enormous room left for the agents to act. Have the agents, Petro-Canada's managers, effectively carried out the politicians wishes on this score? Have the agents used the objective of Canadianization to further their own objectives? The Auditor General has been attempting to examine Petro-Canada's takeover of Petrofina Canada to see if too high a price was paid. In publicly held private firms, excess prices paid for takeovers are noted by the market and the market value of the acquiring firm equity is reduced correspondingly. There is no such explicit mechanism to judge Petro-Canada's takeovers. We are firmly in favour of having the Auditor General examine these takeovers ex post. Voters/taxpayers, the ultimate principals, must have the information, as they would in other markets, to judge the effectiveness of management – Petro-Canada's and the government's.

Financial Effects of Petro-Canada's Formation and Growth and the "Window-on-the-Industry" Role

We examined the impact of the formation and growth of Petro-Canada on the security prices of firms in the oil and gas industry. A number of hypotheses could be identified which provide forecasts of the impact of these events on security prices. The influence runs from an expected impact on cash flows to a change in stock prices.

Arguments which lead to a reduction in stock prices include the following: the entry of a new competitor, the provision of new information about the industry to the federal government, and a signal of further taxation of the industry.

On the other hand cash flows could be expected to increase if the industry were able to "capture" the Crown corporation and obtain assistance from the government that was not previously forthcoming.

The empirical results of our analysis indicate that the announcement of the formation of the firm coincided with a decrease in the stock-market value of integrated oil companies as well as of oil and gas producers. However, other Petro-Canada activities studied, namely acquisitions, did not unambiguously affect industry stock-market values. As we noted, the ambiguous nature of these results was partly due to the fact that in certain cases, the impact of other events (e.g., the introduction of the NEP) contaminated the data. This evidence could support the notion that the government was to receive enhanced information on the oil and gas sector as a result of Petro-Canada activities and this expected information reduced the rents earned by private-sector firms.

How do we set up criteria to evaluate managers' performance in meeting the "window-on-the-industry" objective? First, the measured impact of the announcement of Petro-Canada's formation on the stock-market value of the other firms suggests that the objective was met – but by legislation, not management. The effectiveness of managers' efforts on this score, the production of information, is very difficult to evaluate since if there were other sources to "verify" this information, Petro-Canada's role would not be needed. The very difficulty of establishing evaluation criteria for this objective, the reduced need (i.e., since the formation of the Petroleum Monitoring Agency) for Petro-Canada to act as an information gatherer and the real potential for placing Petro-Canada officials in conflict-of-interest situations as a result of the firm's information gathering and policy-advisory roles all suggest that the "window" function now be ended. Some of these reasons have already been discussed in Chapters 2 and 3.

Financial Criteria for Monitoring and Evaluation

In the preceding section, we discussed specific criteria and systems aimed at the original specific major objectives behind the formation of Petro-Canada. These evaluation systems may be difficult, cumbersome and costly; the more "social" the objective, the more difficult is evaluation. There are general criteria, presently through which overall management efforts can be evaluated. The revised *Financial Administration Act* and our discussions with Treasury Board officials suggest a desire to rely on several financial indicators to assess overall managerial performance. In terms of the developments in this chapter, these indicators would be valuable if they aided in solving the principal/agent problem.

Chapter 4 of this study contains a detailed analysis of numerous financial ratios. The income-related financial ratios indicated that Petro-Canada did not perform as well as the "industry." Cash-flow analysis, however, indicated roughly comparable performances between Petro-Canada and the "industry." These comparisons of financial performance while tenuous in the early years of Petro-Canada's existence are now more reliable as Petro-Canada has operations similar to other members of the "industry." The main conclusion that we draw from this analysis is that, in our opinion, *it would be unwise for Treasury Board or*

other evaluation bodies to rely on financial ratios as guides to the performance of a firm such as Petro-Canada. Our survey of the relevant theoretical issues also buttresses our concern that financial ratios are not sufficient evaluation criteria. The reasons are as follows:

1) social objectives confuse most financial ratios tests;

2) a company in its early stages of rapid development, principally through acquisitions, is likely to have financial ratios different from its competitors who grew more slowly;

3) firms in industries such as oil and gas are susceptible to fluctuating market values as the external environment changes, in this case, as world oil prices vary;

4) differing accounting practices; and

5) tax-paying status of Petro-Canada relative to other companies in the industry.

Therefore, the results of financial ratio tests are not definitive. "Poor" results can indicate poor managerial performance *or* differing major acquisition records *or* efforts by the firm to meet its social objectives. Moreover, the impact on managerial incentives of using financial ratio criteria is not obvious. On the one hand, imposing income-based financial ratio tests might lead managers to promote unduly the "bottom line" at the expense of social objectives. On the other hand, emphasizing financial ratios as an evaluation tool could induce managers to be efficient especially if compensation was based on meeting certain financial performance.

There appears to us to be an alternative to financial ratios which encourages efficiency and does not share the problems associated with income-based ratios; we recommend the use of *expense analysis*. We would suggest that rather than examining income components and the "bottom line," reliance should be put on examining costs and comparing costs to the "industry" for activities in which Petro-Canada competes with private-sector firms. For certain activities such as offshore exploration which are not readily comparable to other firms; we would rely on external audits and analysis.

In order to make this analysis effective for the double principal/agent problem, we would have these comparisons made before the Standing Committee on Energy, Mines and Resources. We are convinced that a standing committee with a professional staff would provide an effective evaluator of the performance of public firms.

One other general means of solving incentive problems must be presented. It has been argued that the managers' desires both to move up in a given hierarchy and to change firms (in other words, activities in the market for managers) stimulates performance to maximize shareholders' wealth. So it is with Petro-Canada. Hiring managers from other oil companies, ensuring some movement with management from outside and paying competitive salaries, all contribute to combatting the incentive problem. We would be concerned if few managers of Petro-Canada were hired away by other firms; this could signal other managers' evaluation of poor performance by Petro-Canada's managers. Petro-Canada management also comes from another sector – government. We view with approval the interchange of personnel between Petro-Canada and the government. This interchange ensures that government officials acquire significant knowledge of the firm's inner workings as well as ensuring that the government's voice is heard.

6 Policy Strategies

When we began this study in January 1984, Petro-Canada was a firm with a set of "social" objectives, although beginning in 1978, these objectives had begun to narrow towards one of "watching the bottom line." In late1984, the mandate was altered so that the firm was to operate in a fundamentally commercial manner with the government retaining the right to direct the firm "to carry out certain activities in the public interest." Since that time, no such formal directives appear to have been given. The set of recommendations which follow are designed to assist in the evaluation and control of a Crown corporation that *has a social purpose*; some readers may view them as a useful historical review of how Petro-Canada should have been controlled in its "social" period. These recommendations, we hope, are more generally useful than as a historical comment. First, as long as Petro-Canada retains its sole government shareholder, we would argue that the double principal/agent problem *requires* that these evaluation systems be put in place. Second, if Petro-Canada is not privatized and formal directions are given to act in the national interest, then these recommendations will assist in ensuring that such directives are followed, and the tasks performed in an efficient manner. Third, the recommendations can be viewed as applicable to Crown corporations *in general*.

The proper control of a Crown corporation such as Petro-Canada should rely on a set of monitoring, evaluation and reward mechanisms to ensure that management of the firm efficiently carries out the desires of the principal. As there are two sets of principals for Crown corporations, the federal government and voters/taxpayers, these mechanisms should allow both principals to examine the firm's operations.

Petro-Canada is not a monopoly supplier of goods or services in most markets it serves and, *given the correct design of control mechanisms*, Petro-Canada should be as efficient in carrying out its role as its private-sector competitors. There is a fundamental difference however in the original *objectives* of Petro-Canada and the objectives of its competitors. The shareholders of private-sector companies wish their managers to maximize the present value of the firms; the objectives of the principals of Petro-Canada were [are] much vaguer, more complex and variable. As a result, control and evaluation of performance are more difficult, and the managers of Petro-Canada can (mis)use the principal's multiple objectives to frustrate proper evaluation, and even to redirect the activities of the firm.

As our first recommendation we argue for rules which prevent possible misuse of multiple social objectives by the firm:

1 Minimize Petro-Canada's role in policy formation and terminate the "window-on-the-industry" function.

Because the potential for conflicts of interest in these areas strike us a both clear and substantial, we would argue that Petro-Canada should not be involved directly or indirectly in any policy setting.

2 Clarify the firm's objectives.

The objectives defined in the *Petro-Canada Act* should be redefined to make them less vague, to suggest priorities if there are trade-offs between objectives, and to incorporate efficiency of operation as an objective.

3 Expand the capital budgeting process.

In the relevant literature, monitoring functions are key to setting correct incentives for managers. For a multi-objective Crown corporation, monitoring of the separate functions is crucial. While the academic literature stresses simple output measures (e.g., productivity, growth in output), the functions of Petro-Canada and its competition with private firms suggests *cost-based comparative monitoring* in addition to the present budgeting process. Our recommendations in this area are as follows:

3.1 The capital budgets should contain greater *detail*, for example, a distinction between amounts to be spent on exploration in federal lands, in conventional areas in Canada, and elsewhere; a breakdown of investment by function (e.g., exploration, discovery, refining, marketing), and by area of the country.

3.2 A larger staff *at EMR* should be devoted to examination of Petro-Canada's annual budget.

3.3 Amendments for an already approved capital budget should be minimized.

3.4 The resulting Orders-in-Council should provide as much information as possible without providing commercially sensitive material to competitors. The government should ensure that as little information is withheld because of the (mis)use of the excuse that the data is commercially sensitive.

Petro-Canada officials suggest that they should not be liable for more public information than the private-sector firms with whom they compete. We disagree. Private firms have shareholders and market constraints; since the voters/taxpayers are Petro-Canada's ultimate principals and shareholders, in the absence of more explicit control mechanisms, they require more data from the public firm to assess its performance. We are in substantive agreement with the increased data flows required under the new *Financial Administration Act*. That *Act* requires an annual report to Parliament (to a designated committee or one to be established) containing:

a) financial statements;

b) the annual auditor's report;

c) a statement on the extent to which the corporation has met its objectives for the financial year;

d) such quantitative information respecting performance as the Treasury Board may require; and

e) any other information as is required.

As this *Act* was only proclaimed on 2 September 1984, its effects on the information provided by Crown corporations cannot yet be fully appreciated. We would underline the need for as much detail as can reasonably be provided. The arguments that the firm's competitors do not provide such information or that the data is commercially sensitive should be regarded with suspicion. Surely it is the Crown corporation's responsibility to *raise* reporting standards, not lower them. The owners of the Crown corporation, the voters/taxpayers, need detailed data to judge the worth of their investment.

We would add two elements to Petro-Canada's formal reporting mechanism. First, a requirement for quarterly reporting (although not in the detail of the Annual Reports); this is simply consistent with the practices of most large, publicly-held, private firms.[1] Second, we would ensure that the Standing Committee on Energy, Mines and Resources had sufficient resources to examine thoroughly Petro-Canada's budgets and the ex post audits, as discussed below.

4 No civil servants on boards of directors.

We would recommend that *no civil servants* be appointed to the board of any Crown corporation that competes with and engages in joint ventures with private-sector competitors.[2]

Boards of directors can play a crucial role in safeguarding shareholders' interests in private firms. The revised *Financial Administration Act* gives board members of Crown corporations similar responsibilities and duties to board members of private corporations. It appears to us that clear and substantial conflicts of interest must arise when civil servants act as board members in these circumstances. The new *Act* requires board members to declare any conflicts of interest if they are a party to a proposed material contract. We would argue that the civil servants who are on the board are in effect "party to a material contract" for many decisions made by the board.

Our difference in opinion with past policy is likely due to differences in perception of the role of the board of directors. The role envisioned by past governments was to have some key civil servants party to all information and all decisions, thus ensuring control. We would argue that having non-civil servants provides more control – these "outsiders" may be more apt to question the wisdom of proposed actions and to discuss their potential commercial viability. Civil servants are more apt to use Crown corporations as an instrument of their particular departments, as well as having continual and real conflicts-of-interest. Having highly responsible, knowledgeable outsiders on the board provides the public with a degree of control over both the corporation and the government since these outsiders are less likely to be swayed by political influence.

The new *Act*, by greatly strengthening the boards, provides important new control mechanisms for all Crown corporations. However, we question whether directors should be removable at any time without at least some statement to Parliament as to the reason for the dismissal. For publicly-held private corporations, the controlling shareholders do have the power to change the board; the reasons are obviously known to them. For Crown corporations, the "controlling" shareholders – the public – should know the reasons for any dismissal.

This recommendation may seem contradictory to our sense that Crown corporations such as Petro-Canada may be run by managers in ways undesired by the principals. We are removing one important avenue for the government to direct the firm. However, this avenue, in our opinion, has many problems, as discussed above. In addition, the avenue

is between the direct principal and the firm leaving the ultimate principal – voters/taxpayers – unaware of direction and susceptible to short-run political expediency.

5 Avoid simple tests for the evaluation of financial performance.

We recommend that simple ex post financial variables be treated with caution in any evaluation procedure.

Our recommendation is based on our extensive examination and comparison among firms of a large set of financial indicators. This comparison showed that differences in accounting techniques, differences in acquisition rate and differences in objectives can greatly mar comparability of financial ratios among firms.

6 Expand the role of ex post auditing.

We recommend an annual audit comparing certain performance indicators and expense items between Petro-Canada and competing major oil firms and outside expert evaluation of asset values and proven reserves.

These comparisons could involve:

a) the rate of productivity increase;

b) exploration costs (per well, per foot) in conventional areas – comparisons with competitors, comparisons with forecasts;

c) finding rates in conventional areas – comparisons with competitors, comparisons with forecasts;

d) as with b) and c) above, in non-conventional areas, where no "competitor exists" – rely on outside, expert evaluation;

e) oilsands technology – outside, expert evaluation;

f) oilsands development (using known technology) and joint ventures – comparisons with other firms and projects; and

g) takeovers – ex post examination by the Auditor General.

In none of these evaluations, are managers to be "blamed" for meeting a social objective such as exploring offshore. What we are trying to evaluate is managers efficiency in meeting these objectives.

7 Expand the use of written directives.

Directives could be used to augment or specify legislative objectives, or signal a change in direction that the government wished to see take place. This would also allow for an easier identification of the ultimate source of responsibility for individual activities.

8 Substantially expand the role of the Standing Committee of Energy, Mines and Resources.

The powers of the Standing Committee on Energy, Mines and Resources should be greatly expanded. *We view this as one of the most important recommendations that we make.*

8.1 Petro-Canada's *Annual Reports*, corporate summaries and annual budgets should be presented to the Committee.

8.2 The Committee should have the right to call any official of Petro-Canada.

8.3 The annual monitoring and ex post audits recommended above (i.e., the elements of Recommendation 6 above) should be placed before the Committee.

8.4 The Committee should have an annual budget and a professional staff large enough to undertake its enhanced activities.

8.5 The Committee should produce an annual evaluation of Petro-Canada (along the lines of what is contained in the *Financial Administration Act*, but expanded to include the additional procedures proposed above). This evaluation would then be tabled in the House.

We view these recommendations as essential because of our concern that the ultimate principals (voters/taxpayers) receive little information and no evaluation as to the performance of the firm. We also are convinced that an enhanced role for a Standing Committee can minimize any use of a Crown corporation for short-run political purposes by the government.

Our analyses have been designed to examine critically Petro-Canada, its mandate, growth and the control process. All critical evaluations have one flaw – they stress problems, areas of concern. This study was not meant to leave the reader with a negative overall impression of this Crown corporation. Its decade of growth is extraordinarily impressive; few areas of overwhelming concern appear.

What of the future role of Petro-Canada and its ownership by the federal government? The *purpose* of this study, its

analyses and its recommendations is the control and accountability of Crown corporations, firms which exist for many purposes. The original purposes behind the formation of Petro-Canada were complex, ambiguous, but a perceived *social* need was seen. Under the new (i.e., late-1984) mandate, however, Petro-Canada's general public-policy role has been substantially reduced, and its social purpose is now unclear. Given the discussion in Chapter 5 concerning the problems of monitoring, evaluation and control in situations with the government as principal and a Crown corporation as agent, we would argue that the costs of maintaining such firms for which there is no clear social purpose are likely to exceed any resulting benefits.

9 Privatize if...

We would encourage the federal government to undertake a detailed analysis of the *long-term* potential of the Canadian oil and gas sector, of the nature and extent of public-policy objectives in this sector, and of the range of policy instruments available to reach these goals. If such a study were to conclude that there were very limited (or no) *social* objectives to be achieved, or that policy instruments other than a national petroleum corporation would be more effective and efficient in attaining these objectives, then we would recommend that 100 per cent of Petro-Canada's equity be sold to the public.[3]

Appendixes

A An Excerpt from: *An Energy Policy for Canada, Phase 1 – Volume I – Analysis*

Those who support state participation in the petroleum sector do so with a variety of arguments which seem to be grouped around the desire to increase Canadian control. One method designed to provide greater Canadian participation and ownership in the petroleum industry is the establishment of a national petroleum company (NPC). Proponents of an NPC suggest that it could be a flexible policy vehicle designed to achieve the realization of some of the objectives for Canadian energy resource development. In the succeeding pages, the advantages and disadvantages of such a course are discussed.

Just what is meant by a "national petroleum company"? Obviously, an NPC could be established to concentrate in only one or two areas of the multifaceted petroleum industry. For the purpose of the ensuing discussion, however, the scope of the NPC proposed is that of a fully-integrated [sic] petroleum company operating in the exploration, production, transporting, refining and marketing spheres of the oil industry, on a nation-wide basis.

Why create a national petroleum company? What benefits are anticipated which would accrue to Canadians?

1) Perhaps the greatest advantage of an NPC is the social benefit to Canadians of the pride, satisfaction and confidence of owning a portion of the petroleum industry operating in Canada. It is a benefit which cannot be quantified, but if Canadians are concerned that the domestic petroleum industry is foreign-controlled, then an NPC would help to ease that concern. Social satisfaction would accrue from the expectations that ultimately Canada would reap more of the profits associated with successful petroleum industry operations.

2) There is a need to increase the level of knowledge of all phases of the operations of the petroleum industry. While Canadian-controlled companies in the private sector are active in some spheres of petroleum industry operations, only a few foreign-controlled fully integrated companies have the broad knowledge and experience associated with the total spectrum of the petroleum industry. An NPC of important size would have, as one of its key objectives, the increase of Canadian knowledge about the domestic and international petroleum industry. It would be concerned about the Canadian resource base, the problems of exploration, development and transmission, marketing, transfer prices, and all of the aspects of the commercial activity which interrelate so much with the role of public policy. However, it might be agreed that acquiring such knowledge and insights will be neither easy nor inexpensive.

3) An NPC could play some role in determining the criteria on which the government might base its policies regarding economic rent collection. Unless it were a corporation of immense size, relative to the total petroleum sector, the NPC obviously would not be a significant direct agent for the government in the collection of economic rent. However, an NPC could play an important role in establishing a reasonable value by which rent would be determined; for example, when Crown lands were being offered for bonus bids. This benefit cannot be completely divorced from the previous one regarding the improvement of knowledge of the activities of the petroleum industry. Economic rent is obtained in part by the government by taxes, royalties and similar measures. Corporate taxes, based on profit, can to some extent be controlled by foreign-owned companies if the parent corporations levy relatively heavy charges on Canadian subsidies for management services, patent fees, and other business transaction. The NPC, being independent of a "parent" company, would provide information on its integrated operations by which other privately controlled companies could be gauged, information which would provide the government with guidance on how best to collect economic rent.

4) An NPC, if it controlled sufficiently large volumes of petroleum reserves, would be able to exert an influence on the setting of crude oil and product prices. Crude oil prices, or the posted wellhead prices, are set at present by the "majors," and on the main the posted prices are tied to the Chicago market price. An NPC would be independent of this situation and could set prices appropriate to Canadian conditions.

5) Export demand for Canadian petroleum has been predominantly for crude oil and other unprocessed feedstocks. In 1971, 95 per cent of Canadian petroleum exports were crude oil and equivalents. An NPC could encourage the upgrading of crude oil in Canada by seeking an export market for refined products rather than for the unprocessed raw petroleum, with greater attendant benefits to Canada in value added, employment, and other effects.

6) The major integrated oil companies carry out the bulk of their research in the country of their parent corporations. Little real petroleum research is done in Canada compared to the importance of this activity to the Canadian energy scene. An NPC could act as a centre for Canadian research and development, concentrating particularly on unique Canadian opportunities and on the potential for spin-offs in industrial activity and technology to Canadian industries.

Of course, the same kind of research and development could be conducted by the government, or indirectly by funding of a research institute. The advantage of an NPC having such research and development as a major objective would be that it would likely have an immediate opportunity for field testing and for commercial application which would probably not be available to the government or an institute. On the basis of such research, the NPC would also have the advantage of developing contacts with the Canadian manufacturing industry which might increase Canadian content in petroleum developments.

7) Because all aspects of the operations of the NPC would be resident in Canada, increased employment benefits, relative to the foreign-controlled corporations, could accrue to Canada. In addition to the establishment of the company's head office and the need for field staffs, employment benefits should be realized in the supporting service and supply sectors.

8) An NPC should purchase to a greater extent than the foreign-controlled companies Canadian-produced goods and services. Existing Canadian technical and administrative service and supply establishments would have both the incentive and impetus to expand, which would give this sector a firm basis upon which to grow and, hopefully, develop into a world scale services industry in its own right. Indeed, Canada could develop a leadership position, given appropriate incentives, in specialized areas where the industry can demonstrate pathfinder techniques – particularly in offshore, high Arctic and oilsands technologies.

9) An NPC could act to stimulate regional development in specific areas of the country. There are many areas in Canada with petroleum potential which, for a variety of reasons, are not attractive to the private corporation. The geology may not be as favourable as their prospects elsewhere in Canada or outside of Canada. Labour productivity may be a problem or there may be a lack of competitive transportation. It might prove entirely impossible for a government to provide, by legislation, special incentives to encourage the private sector to work in designed regions in Canada. The tax system may be unavailable for special incentives because of the desire to have rules of equal application throughout Canada. At times, circumstances may make legislative or regulatory activity undesirable to a government to encourage the private sector to step in by changing the odds in comparison with other opportunities for the investment of capital and the use of risk money. An NPC could be an important vehicle for mineral activity in these relatively unattractive regions. These could include the west coast of British Columbia, certain parts of the B.C. interior, areas in the Gulf of St. Lawrence and both offshore and onshore in the Maritime provinces. Additionally, more work might be done on Hudson Bay and in southern parts of the Northwest Territories.

If it should occur that only marginal petroleum fields are discovered in a certain region of Canada, such marginal fields might not be attractive for development by the private sector. Nonetheless, for political and social, rather than purely economic reasons, the government could well regard such development as important to the region and perhaps even to Canada as a whole. This area of activity, while justifiable for an NPC, would not be appropriate to a private-sector company which must assess possible development on a strictly commercial basis and which would expect a higher rate of return than might be acceptable to an NPC and to the government.

Basic to this argument is the concept that a less than optimum economic oil and gas development program would be encouraged. This is one spectre of the operations of an NPC that would need to be weighed carefully, if it is also to be a goal for the company to operate in a relatively economic fashion.

10) An NPC might also play an effective role in government relations with other countries where their state companies were dominant or active. In the OPEC countries, government ownership of the majority of production and development activity is proceeding rapidly. Also, there is a trend towards more OPEC-government participation in refining and marketing. Many of the leading consumer countries also have state corporations and it is possible that by the early 1980s an important share of the international petroleum trade will take place through government-to-government arrangements. Canada may find it advantageous to have a national vehicle for this purpose in order to participate in international oil trade. In any event, an NPC could create a channel for oil deliveries to or from Canada, outside of that provided by the major oil companies. This more balanced distribution may enhance Canadian security of supply. A possible additional benefit may relate to the achievement of some effective trade arrangements with major oil-producing nations: for example, Canadian oil

purchases in exchange for the sale by Canada of goods and services, not necessarily related to oil.

On the other hand, the interjection of an NPC in international petroleum affairs will tend to reduce the role of the major international companies, thus a buffer between the government and the producing states would be set aside. There would be no doubt that the activities of the NPC would reflect government policy. Should such activities result in difficulties, these difficulties would clearly be between governments and not just with the operations and negotiations of the oil companies.

It can be seen, therefore that there are a number of social, economic, and political arguments in favour of the creation of a national petroleum company. The list above is not an exhaustive one. Despite the apparent advantages to Canada accruing from an NPC, none exists today. Why? What are some of the factors which militate against the creation of an NPC?

1) Probably more than any other factor, the question of cost inhibits the creation of an NPC. To start from the beginning – to assemble acreage, find oil, build pipelines, refineries, and marketing facilities – the cost would be extremely high. Judging from the investments in national petroleum companies in other countries, the cost could fall in the range of $3-$6 billion. A portion of this cost, to be borne by the Canadian taxpayer, could be over and above the approximately $50 billion needed to finance major energy projects during the next decade.

The creation of a large, integrated petroleum company is not an easy task and one could reasonably assume, even given a high degree of success in exploration and market penetration, that it could take 15-20 years for the company to be a significant force in the industry.

2) The world enters an era towards the end of this century when the petroleum industry will experience a slower rate of growth. Most of the large, integrated oil companies are already diversifying into other areas such as chemicals, hotels, and coal and uranium mining. Given this situation, it may be unreasonable to expect that a publicly-owned [sic] company could gain a substantial share of the market against competition from the multinational firms and also achieve a reasonable growth rate strictly within the petroleum industry.

3) Should Canadians determine that the benefits of an NPC outweigh the high cost, there are major barriers to the creation of a national oil company. In the first place, it would be time consuming and/or expensive for an NPC to assemble substantial potential oil and gas acreage. Most of the territory expected to yield new oil and gas reserves is already under permit to petroleum companies. If restricted to frontier areas, the NPC therefore would be forced to search for and produce oil from high cost areas, at an economic disadvantage to the other integrated companies. Land might be acquired by an NPC through access to the government's Crown Reserves and the government's share in Panarctic holdings.

If the NPC were to seek and obtain acreage in the western provinces, the cost would be relatively high, given today's high petroleum prices and anticipated higher prices of tomorrow. Additionally, it is conceivable that the NPC, owned by the federal government, could be the cause of some federal provincial conflicts concerning resources development policies.

In addition to envisaged difficulties associated with the assembly of potential oil and gas acreage, should the NPC be established and superimposed over the existing petroleum industry framework in Canada, surplus refinery capacity might be created. If this surplus were to be used to process crude in Canada to provide petroleum products for the export market, market disruption in Canada would be minimal. However, if a major surplus of product were allowed to develop in Canada, it is possible that the resulting competition could be damaging to the industry, although to the possible advantage of the consumer in the short run.

The marketing activities of the integrated petroleum companies have, to date, been only marginally profitable, the major portion of profits being realized in other areas of their operations. If this situation continues the imposition of a major new marketing endeavour by an NPC could have serious disruptive effects on the retail end of the industry, particularly if it occurred during a period of surplus petroleum products. In this case the NPC might be force to cut prices in order to gain a market share. Indeed, short of outright purchase of retail outlets, it may be difficult for the NPC to establish a successful retail marketing operation. Most if not all desirable locations for retain outlets in urban areas are already in the hands of existing companies, and many urban centres, faced with an overabundance of retail petroleum outlets, have passed laws restricting additional growth. Is there, therefore, a market potential for an NPC?

Some of these difficulties might be overcome to a degree if, rather than creating a new company from the beginning, a state oil company were created by purchasing outright one of the Canadian subsidiaries of the foreign-owned integrated oil companies. The cost of buying the total assets, including capital facilities, acreage, goodwill, etc. could be

excessive. Strictly as an example, Imperial Oil, Canada's largest oil company, in its 1972 *Annual Report*, reported shareholders' equity of $1.12 billion and reserves of 1.4 billion barrels of oil and 3 trillion cubic feet of gas. Issued capital stock at the end of 1972 totalled 129,520,215 shares. At an average market price of $40 per share (1972 stock prices ranged between $30 and $50 per share), it would cost at least $5.2 billion to purchase Imperial Oil. However, to buy any existing foreign-owned company presupposes that the owners would be disposed to sell, a hypothesis which is debatable.

4) Sixty-six per cent of petroleum company capital needs in Canada are derived from the internal sources of the companies. The multinational corporations have permitted their Canadian subsidiaries to retain much of their earnings in Canada to finance exploration and expansion programs. It is conceivable, given evidence of a relatively hostile climate in Canada, whether real or imagined, but spearheaded by the creation of an NPC, that foreign shareholders of the Canadian subsidiaries may call for a greater repatriation of profits on their investments. Thus, the creation of a large, competitive NPC might discourage the multinational corporations from continuing to reinvest their earnings in Canada, with undesirable economic consequences.

5) Due to the diversity of its goals, the NPC is likely to be less commercially efficient than its competitors, and therefore not effective in playing a major role in maintaining or setting low prices. Additionally, should the NPC be less efficient than its competitors, it might prove to be a poor yardstick by which the government could judge the economic rent collection prospects of the more efficient members of the industry.

6) As stated in the introduction, the overall record of private industry in the exploration and development of petroleum in Canada has been good. Foreign-controlled companies have provided leadership and have been prepared to accept the substantial risk associated with exploration in difficult regions of Canada. One must ask whether an NPC could operate free from political and public pressure in the face of continued unsuccessful exploration programs. For example, would the Canadian public stoically accept the prolonged lack of success which has dogged exploration programs off the East coast during recent years.

Certainly some aspects of the company's operations would be governed by social or political decisions rather than economic criteria, but one must also question whether the NPC would be allowed to make important investment or capital decisions based on purely market factors. For example, would the NPC be forced to build refineries in depressed areas? Would there be a conflict between regional interests for the location of refineries?

7) The NPC might attain a dominant role in terms of the policies and regulations relevant to the petroleum industry. This dominant role would come about through the expertise the company's officers would develop within the company. Senior officials could lay claim to having knowledge of "what was best" for the company and Canada, rather than government officials in regulatory and policy-making positions. In such a situation, conflict could occur, and the objectivity essential to the successful formulation of policy and implementation of regulations could be jeopardized.

8) The assumption that an NPC would achieve public acceptance at the retail sales and presupposes that Canadians would prefer to "buy Canadian." There is no evidence to support this proposition, and indeed, past experience with such companies as "White Rose" and "Supertest" suggests that Canadians did not rate "Canadian content" high in their decisions to frequent specific petroleum companies.

The comments just outlined do not constitute an exhaustive list of arguments for or against a national petroleum company. Clearly, many of the policy issues could be achieved by a variety of alternate means – either with legislative, fiscal and regulatory support, or simply by the enunciation of government policy in specific sectors. It is not the purpose of this paper to make value judgements on the merits of the creation of a national petroleum company; however, the public should be aware of the major benefits, costs and associated risks involved in such a venture.

B Technical Discussion of the Approaches Used in Chapter 3

Residual Analysis

Techniques

The methodology begins with the assumption that the rates of returns on individual securities are drawn from a multivariate normal distribution (Fama 1965). This implies that a portfolio of securities, being a linear combination of individual securities, will also have a normal distribution. Defining the market portfolio as that portfolio which contains all securities outstanding weighted by their respective market values, there exists a relationship between the rate of return on an individual security and that on the market portfolio. This relationship, written below, is called the market model:

$$R_{it} = a_i + b_i R_{mt} + e_{it} \tag{1}$$

where $E(e_i) = 0$ for all t;

$$cov\,(e_{it}, e_{i,t-1}) = 0;$$

$$cov\,(e_{it}, R_{mt}) = 0; \text{ and}$$

$$E(R_{it} \mid R_{mt}) = a_i + b_i R_{mt} \tag{2}$$

where R_{it} is the rate of return over period t on security i, R_{mt} is the rate of return over period t on the market portfolio, a_i and b_i are the intercept and slope, respectively, from a linear equation of the form in equation (1).

Equation (1) states that the rates of return for security i are related to movements in the rate of return on a market index. It follows that some securities will be more volatile than others with respect to changes in the market index and the measure of this relative volatility for a given security i is b_i. The factor e_{it} reflects influences on the rate of return of a security that are independent of market movements; these influences are thus firm-specific and would include events such as firm-specific announcements. When a portfolio of securities is constructed, much, if not all, of the impact of these firm-specific influences on the portfolio's rate of return can be eliminated through diversification. The resulting portfolio will have a systematic portfolio risk measure which is equal to a weighted average of the risk measures of its components. The portfolio version of the market model is written as:

$$R_{pt} = a_p + b_p R_{mt} + e_{pt} \tag{3}$$

where the subscript p refers to a portfolio.

From equation (2), the expected rate of return on a security, given an actual rate of return on the market, is a linear function of the return on the market. This relationship is in fact a regression equation.

For every firm in the sample, the rates of return[1] on the security are divided into two non-overlapping periods. The first is called the "estimation period" and by fitting the market model to holding period rate-of-return data over this time period, estimates of the market-model parameters $(\hat{a}_i, \hat{b}_i)$ can be obtained. This estimation period should be free of influences on the rate of return generated by the event under consideration. The second time period is called the "event period" and is used to calculate a residual or abnormal return for each interval in the event period. The measured error, u_{it} for security i for interval t in the event period, is defined as:

$$\hat{u}_{it} = R_{it} - \hat{a}_i - \hat{b}_i R_{mt}$$

where $\hat{a}_i$, $\hat{b}_i$ are estimated market-model parameters from the estimation period; R_{it} is the observed rate of return on security i at period t during the event period; R_{mt} is the observed rate of return on the market portfolio at t; and $t = -k, \ldots, 0, \ldots + k$ where k is the number of periods surrounding the announcement date, 0. This measured residual is an estimate of the impact of an event on the rate of return on a security after removing the influence of the overall market. Thus, it is an abnormal return generated at time t by the event.

Statistical tests for the significance of each measured residual in event time can also be defined.[2]

In our application, we are interested in the impact of a particular announcement, either the formation of a NPC or of one of Petro-Canada's takeovers actual or attempted, on the rate of return for a particular group of companies.[3] The

group or portfolio of companies include an oil and gas producers sample and an integrated oil sample. Each portfolio is a sub-index on the Toronto Stock Exchange (hereafter, TSE). The portfolio composed of both of these sub-indexes is referred to as the oil and gas index and is an important component in the overall TSE index.

For the earlier time periods, the data on all the indexes – integrated oils, oil and gas producers and the TSE index – are reported excluding the reinvestment of dividends. The resulting rate-of-return calculation reflect solely capital gains or losses. For later events, the indexes include the reinvestment of dividends and this results in the standard rate-of-return calculation.

In applying the market model for portfolios, equation (3), since the dependent variable (one of the two sub-indexes) is a component of the market index (TSE), some adjustment to the TSE index is required. The adjustment undertaken removes the total oil and gas index from the TSE index, the resulting index is referred to as an adjusted TSE index. Residuals are then calculated based on the regression parameters from equation (3) and an adjusted market return over the event period.

The removal of the oil and gas index will affect the estimated values of the regression parameters over the estimation period. A comparison of the abnormal returns (residuals) using either an adjusted or unadjusted market index finds that regression parameters, and residual values are affected but there is very little impact on the sign and significance of a residual on a particular period during the event period.

The adjustment technique is as follows:

Let R^*_{mt} = the rate of return during period t on the adjusted version of the market index;

R_{mt} = the unadjusted version rate of return;

f_t = the market value weight of the oil and gas industry in the overall market index in period t;

R_{ot} = the rate of return on the oil and gas index during period t.

By definition:

$$R_{mt} = f_t R_{ot} + (1 - f_t) R^*_{mt} \qquad (4)$$

Rearranging and solving for R^*_{mt}:

$$R^*_{mt} = \frac{R_{mt} - f_t R_{ot}}{1 - f_t} \qquad (5)$$

An additional adjustment to the dependent variable is required when investigating a takeover of a particular firm. Since the company in question may have large abnormal rates of returns due to speculation concerning the size of the premium that will be paid in a takeover, the company's equity is removed from the particular index in which it belongs. The adjustment procedure is equivalent to that presented in equation (5) but the variables are redefined such that the rate of return on the company takes the place of R_{ot} the specific index is R_{mt} and f_t is the weight of the company in the index. This adjustment results in the reduction of the average rate of return on the index.

Problems and Caveats

The measured residuals depend upon the estimates of a and b derived over the estimation period. To use the technique, it is necessary to assume that the estimated parameters of the market model are those that are expected to prevail over the event period. If the estimation period is unusual, for example, if it were to encompass the announcement of the NEP, it would be unlikely that the estimated parameters would be applicable to the event period. Since the estimated $\hat{a}$ measures the average impact on the security (or portfolio) if the rate of return on the market were zero, $\hat{a}$ would be negative if the NEP were expected to harm the integrated oil companies. However, there is no reason to believe that the $\hat{a}$ should be negative over the event period. Therefore, using the negative $\hat{a}$ when it is not applicable will bias upward the measured residuals over the event period. This problem arises from the reasonable assumption that capital markets are efficient such that announcements are fully and quickly reflected in security prices.

Not only can there be problems with the intercept but the slope coefficient may not be stable or may be subject to measurement error. Thus, very large measured slope coefficients (b) are likely to reflect positive measurement error and the true $\hat{b}$ that should be used in the event period is likely to be lower than the measured value. In this instance, if the return on the market index over the event period is large and positive, the measured residual for high risk (b) stocks is biased downward. If the return in the market is not large, the bias will be in the opposite direction.

In order to address this problem, measured residuals during the event period are also calculated using assumed values of the regression parameters; the values used are

$\hat{a} = 0, \hat{b} = 1$. If the results are different they are reported separately. However, in all circumstances the results although different in magnitude do not alter any statistically significant results.

Comparison-Period-Returns Approach

Under the comparison-period-returns approach, a statistical test is required to determine if the mean rates of return over the event and estimation period are different. The t-test constructed is:

$$t = \frac{R_1 - R_0}{\left[\frac{(n_1 - 1)S_1^2 + (n_0 - 1)S_0^2}{n_1 + n_0 - 2}\right]^{1/2} \cdot \left[\frac{1}{n_1} + \frac{1}{n_0}\right]^{1/2}} \quad (6)$$

where subscript 1 refers to estimation period and 0 to the event period;

n = the number of observations;

S^2 = the estimated variance of rate of return; and

R = the average rate of return.

This test recognizes that each period has a different sample variance of rate of return. In fact in all of the samples the value of the estimated variance in the event period is greater than its value in the estimation period.

However, this test biases the result toward low t-values when compared with a t-test constructed under the assumption that the variance during the event period is equal to the estimated variance during the estimation period. Both t-tests were calculated and although the latter did result in higher t-values, significance tests were not changed; statistically insignificant results based on equation (6) did not become significant when the alternative t-test was applied.

C Excerpts from Orders-In-Council Relating to Petro-Canada

P.C. 1976-1963
29 July 1976

HIS EXCELLENCY THE GOVERNOR IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the President of the Treasury Board and the Minister of Finance, is pleased hereby to revoke Order-in-Council 1976-4/1149 of 18 May 1976, and, pursuant to subsection 7(5) of the *Petro-Canada Act*, to approve:

1. The capital budget of Petro-Canada for the financial year 1976, as set out in Schedule "A" attached hereto, which includes:

   (a) Capital expenditures directly by Petro-Canada or indirectly through its subsidiary, if any, of not more than five hundred and ten million dollars ($510,000,000) for the following:

      (i) the sum of three hundred and forty-five million dollars ($345,000,000) for the acquisition, by Petro-Canada, of the shares of Atlantic Richfield Canada Ltd.;

      (ii) the sum of seventy million dollars ($70,000,000) for the Syncrude Project;

      (iii) the sum of eighty-eight million dollars ($88,000,000) to finance exploration activities within Canada; and

      (iv) the sum of seven million dollars ($7,000,000) for the Polar Gas Project;

      and subject to the condition that the total of the capital expenditures made in accordance with item 1(a) hereof shall not exceed five hundred and ten million dollars ($510,000,000) the Board of Directors of Petro-Canada may

      (i) increase each sum set out in terms (i), (ii), (iii) and (iv) by an amount equal to ten per cent (10%) of that sum or by ten million dollars ($10,000,000) whichever is the lesser; and

      (ii) approve capital expenditures of eight million dollars ($8,000,000) for Research and Development projects and eight million dollars ($8,000,000) for Oil and Gas Field Development projects, for a total of sixteen million dollars ($16,000,000);

   (b) The issuance of capital stock of Petro-Canada, valued at approximately one hundred and seventy-four million dollars ($174,000,000), as payment for,

      (i) all of the capital stock owned by Her Majesty the Queen in Right of Canada in Panarctic Oils Limited, in accordance with an agreement between the

Minister of Indian and Northern Affairs and Petro-Canada (P.C. 1976-579); and

(ii) the entire interest of Her Majesty the Queen in Right of Canada in the Syncrude Project (P.C. 1976-3/1008);

(c) Future capital commitments directly by Petro-Canada or indirectly through its subsidiary, if any, of not more than one hundred and thirty-five million dollars ($135,000,000) for the following:

(i) the sum of one hundred and ten million dollars ($110,000,000) for such exploration in Canada as may be approved by the Board of Directors of Petro-Canada; and

(ii) the sum of twenty-five million dollars ($25,000,000) for such other capital commitments as may be approved by the Board of Directors of Petro-Canada.

2. The inclusion within the unexpended balance of the appropriate part of the capital budget referred to in item 1 hereof of any amount received by Petro-Canada or its subsidiary, if any, as a refund or repayment of a capital expenditure or commitment or as payment for the sale in whole or in part of any right, title or interest in and to any real or personal property of any kind or nature whatsoever and wheresoever situate which Petro-Canada or its subsidiary, if any, has acquired or may acquire as a consequence of the capital expenditures or commitments made or given under item 1 hereof.

From the
Privy Council Office

Petro-Canada Capital Budget, 1976

	Projected in 1976
	($ Millions)
Budgeted expenditures	
(1) Capital expenditures	
Polar Gas Project	7
Oil and gas exploration	88
Syncrude Project	164
Panarctic acquisition	80
ARCAN acquisition	345
Research and development	8*
Oil and gas field development	
– Arctic Islands and East Coast Offshore	0
– Other	8*
Total capital expenditures	700
(2) Other expenditures	
Operating and administration	5
Interest on debt	12
Total	17
(3) Increase to working capital	19
Total budgeted expenditures	736
Sources of funds	
(1) Internally generated	
ARCAN cash flow	31
Interest income	5
(2) Long-term debt from private sector	245
(3) Capital stock from government	
Common shares	290
Preferred shares	165
Total sources of funds	736

* See paragraph 1(a) of Order-in-Council to which this is attached for limit in these expenditures.

P.C. 1976-3275
23 December 1976

HIS EXCELENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the President of the Treasury Board and the Minister of Finance, pursuant to subsection 7(5) of the *Petro-Canada Act*, is pleased hereby to approve the annexed Capital Budget of Petro-Canada for the financial year 1977 including:

1. Capital expenditures by Petro-Canada or its subsidiaries, not to exceed a total of two hundred and seventy-one million, six hundred thousand dollars ($271,600,000) as set out in categories 1(a) through (e) of the summary of the Petro-Canada Capital Budget attached hereto as Schedule "A," provided that Petro-Canada may reallocate funds among the said categories subject to the total capital expenditures provided for in this item 1, and to the restriction that no such category may be increased or decreased in total by more than the lesser of the 10 per cent thereof or ten million dollars ($10,000,000).

2. Authority permitting Petro-Canada or its subsidiaries, to enter into future commitments in the financial year 1977 of up to

   (i) Two hundred million dollars ($200,000,000) for exploration;

   (ii) Fifty million dollars ($50,000,000) for development; and

   (iii) Twenty million dollars ($20,000,000) for such other purposes as may from time to time be chosen by Petro-Canada,

   provided that the total of all such future commitments made in the financial year 1977 shall not exceed two hundred and fifty million dollars ($250,000,000).

3. Authority permitting Petro-Canada or its subsidiaries, to guarantee, directly or indirectly, up to five million dollars ($5,000,000) in respect of a natural gas pipeline to serve the Syncrude Project.

From the
Privy Council Office

Petro-Canada Capital Budget, 1977 – Schedule "A"

		($ Millions)	
1. Uses of funds			
a. Exploration		130.0	
b. Development			
– Oil and gas field development	27.0		
– Pre-development and prototype study	8.0		
– Project development	2.1		
Total development		37.1	
c. Research and development		1.0	
d. Polar Gas Project		4.0	
e. Syncrude Project		99.5	
Total capital expenditures			271.6
f. (i) General and administration		8.2	
(ii) Other expenses (debt servicing)		12.3	
(iii) Working capital		(4.6)	15.9
			287.5
2. Sources of funds			
– Common shares			125.0
– Preferred shares			99.5
– Debt retirement			(10.0)
– Cash flow			73.0
			287.5

P.C. 1977-3594
22 December 1977
T.B. Rec. 753727

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the President of the Treasury Board and the Minister of Finance, is pleased hereby to approve, pursuant to subsection 7(5) of the *Petro-Canada Act* and subsection 70(2) of the *Financial Administration Act*, the Capital Budget of Petro-Canada for the financial year 1978 including:

1. Capital expenditures by Petro-Canada or its subsidiaries, which shall not exceed a total of three hundred and seven million, one hundred thousand dollars ($307,100,000) as set out in categories 1(a) through (e) of the summary of the Petro-Canada Capital Budget attached hereto as Schedule "A," provided that Petro-Canada may reallocate funds among the said categories subject to the limit for total capital expenditures provided for in this item 1, and to the condition that each of the categories (a), (b), and (e) may be increased by no more than ten million dollars ($10,000,000) and the condition that each of the categories (c) and (d) may be increased by no more than one million dollars ($1,000,000).

2. Authority permitting Petro-Canada or its subsidiaries, to enter into future commitments in the financial year 1978 of up to

   (i) One hundred and fifty million dollars ($150,000,000) for exploration;

   (ii) Four hundred million dollars ($400,000,000) for development; and

   (iii) Twenty million dollars ($20,000,000) for such other purposes as may from time to time be chosen by Petro-Canada,

   provided that the total of all such future commitments made in the financial year 1978 shall not exceed four hundred and seventy-five million dollars ($475,000,000).

From the
Privy Council Office

Petro-Canada Capital Budget, 1978 – Schedule "A"

	($ Millions)	
1. Uses of funds		
(a) Exploration	140.0	
(b) Development	111.2	
(c) Research and development	2.5	
(d) Polar Gas Project	1.5	
(e) Syncrude Project	51.9	
Total capital expenditures		307.1
(f) Interest expense	8.9	
(g) Working capital	(8.1)	0.8
		307.9
2. Sources of funds		
(a) Common shares	180.0	
(b) Preferred shares	51.9	
		231.9
(c) Debt financing	20.0	
(d) Debt retirement	(20.0)	
(e) Funds provided from operations	76.0	76.0
		307.9

P.C. 1978-3819
21 December 1978

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the President of the Treasury Board and the Minister of Finance, is pleased hereby to revoke Orders-in-Council P.C. 1977-3594 of 22nd December 1977 and P.C. 1978-3450 of 15th November 1978, and to approve, pursuant to subsection 7(5) of the *Petro-Canada Act* and subsection 70(2) of the *Financial Administration Act*, the Capital Budget of Petro-Canada and its subsidiaries for the financial year 1978 including:

1. Capital expenditures by Petro-Canada or its subsidiaries, which shall not exceed a total of $1,742,000,000 as set out in categories 1(a) through (e) of the summary of the Petro-Canada Capital Budget for 1978 attached hereto as Schedule "A," provided that Petro-Canada may reallocate funds among the said categories subject to the limit for total capital expenditures provided for in this item 1, and to the condition that each of the categories (a) and (d) not be increased by more than $2,000,000.

2. Authority to undertake the expenditures in the financial year 1979 equivalent to that portion of the amount of the $1,502 million set out in item (e) of the Summary of the Petro-Canada Capital Budget for 1978 attached hereto as Schedule "A" not expended in the 1978 financial year.

3. Authority for a subsidiary of Petro-Canada to finance the acquisition of Pacific Petroleums Ltd. by the issue of preferred shares to Canadian chartered banks in the amount of $1,250 million in United States dollars.

4. Authority permitting Petro-Canada or its subsidiaries, to enter into future commitments in the financial year 1878 of up to

   (i) One hundred million dollars ($100,000,000) for exploration;

   (ii) Fifty million dollars ($50,000,000) for development; and

   (iii) Twenty million dollars ($20,000,000) for such other purposes as may from time to time be chosen by Petro-Canada.

From the
Privy Council Office

P.C. 1978-3820
21 December 1978

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the President of the Treasury Board and the Minister of Finance, is pleased hereby to approve, pursuant to subsection 7(5) of the *Petro-Canada Act* and subsection 70(2) of *the Financial Administration Act*, the Capital Budget of Petro-Canada and its subsidiaries for the financial year 1979 including:

1. Capital expenditures by Petro-Canada or its subsidiaries, which shall not exceed a total of $375,000,000 as set out in categories 1(a) through (c) of the summary of the Petro-Canada Capital Budget for 1979 attached hereto as Schedule "A," provided that Petro-Canada may reallocate funds among the said categories subject to the limit for total capital expenditures provided for in this item 1, and to the condition that each of the categories (a), (b) and (c) not be increased by more than $15,000,000.

2. Authority permitting Petro-Canada or its subsidiaries to enter into future commitments in the financial year 1979 of up to

   (i) Two hundred million dollars ($200,000,000) for exploration;

   (ii) One hundred and seventy-five million dollars ($175,000,000) for development;

   (iii) Twenty-five million dollars ($25,000,000) for the Syncrude Project; and

   (iv) Fifty million dollars ($50,000,000) for such other purposes as may from time to time be chosen by Petro-Canada;

   provided that the total of all such future commitments made in the financial year 1979 not exceed four hundred and twenty-five million dollars ($425,000,000).

From the
Privy Council Office

Petro-Canada Capital Budget, 1978 – Schedule "A"

	($ Millions)	
1. Uses of funds		
(a) Exploration	105.0	
(b) Development and related research	54.0	
(c) Polar Gas Project	1.5	
(d) Syncrude Project	79.5	
(e) Acquisition of Pacific Petroleums Ltd.	1,502.0	
Total capital expenditures		1,742.0
(f) Dividend on preferred shares	14.1	
(g) Interest expense	12.4	
(h) Working capital	(2.6)	23.9
		1,765.9
2. Sources of funds		
(a) Common shares	160.0	
(b) Preferred shares	79.5	239.5
(c) Issuance of preferred shares by Petro-Canada Exploration Inc.		1,464.4*
(d) Debt retirement	(20.0)	
(e) Funds provided from operations	82.0	62.0
		1,765.9

* Equivalent to US$1,250 million at the prevailing exchange rate on November 10, 1978.

Petro-Canada Consolidated Capital Budget, 1979

	($ Millions)	
1. Uses of funds		
(a) Exploration	220.0	
(b) Development and related research	134.0	
(c) Syncrude Project	21.5	
Total capital expenditures		375.5
(d) Dividend on preferred shares	98.8	
(e) Interest expense	23.5	
(f) Working capital	10.7	133.0
		508.5
2. Sources of funds		
(a) Common shares	140.0	
(b) Preferred shares	73.4	213.4
(c) Debt retirement	(36.6)	
(d) Funds provided from operations	331.7	295.1
		508.5

P.C. 1979-3563
20 December 1979

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the President of the Treasury Board and the Minister of Finance, pursuant to subsection 7(5) of the *Petro-Canada Act* and subsection 70(2) of the *Financial Administration Act*, is pleased hereby to approve the Capital Budget of Petro-Canada and its subsidiaries for the financial year 1980 including:

1. Capital expenditures by Petro-Canada or its subsidiaries, which shall not exceed a total of $435,000,000 as set out in categories (a) and (b) of the summary of the Petro-Canada Capital Budget for 1980 attached hereto as Schedule "A," provided that Petro-Canada may reallocate funds among the said categories subject to the limit for total capital expenditures provided for in this item, and to the condition that each of the categories not be increased by more than $25,000,000.

2. Authority permitting Petro-Canada or its subsidiaries to enter into future commitments in the financial year 1980 of up to

   (i) One hundred million dollars ($100,000,000) for exploration; and

   (ii) Two hundred and fifty million dollars ($250,000,000) for development and petroleum products.

From the
Privy Council Office

Petro-Canada Consolidated Capital Budget, 1980 – Schedule "A"

		($ Millions)
Uses of funds		
Capital expenditures:		
(a) Exploration	228.6	
(b) Development and petroleum products	206.4	435.0
Debt retirement		47.1
Total uses		482.1
Sources of funds		
Funds provided from operations:		
Net operating income	454.2	
Dividends on preferred shares	(108.3)	
Interest expenses	(23.8)	322.1
Working capital		120.0
External sources or non-recurring net income from sale of assets		40.0
Total sources		482.1

P.C. 1980-2750
16 October 1980

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, pursuant to subsection 7(2) of the *Petro-Canada Act*, is pleased hereby to direct that Petro-Canada shall exercise its powers under that Act to undertake the obligations of Canada under an agreement of May 27, 1980 between Canada and the United Mexican States, to enter into commercial arrangements to acquire, and to have delivered to Canada, the Mexican crude oil agreed to be supplied to Canada thereunder.

From the
Privy Council Office

P.C. 1980-3426
16 December 1980
T.B. Rec. 774573

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the President of the Treasury Board and the Minister of Finance, is pleased hereby to approve, pursuant to subsection 7(5) of the *Petro-Canada Act* and subsection 70(2) of the *Financial Administration Act*, the Capital Budget of Petro-Canada and its subsidiaries for the financial year 1981 including:

1. Capital expenditures by Petro-Canada or its subsidiaries, which shall not exceed a total of $900,000,000 as set out in categories (a) and (b) of the summary of the Petro-Canada Capital Budget for 1981 attached hereto as Schedule "A," provided that Petro-Canada may reallocate funds among the said categories subject to the limit for total capital expenditures provided for in this item, and to the condition that each of the categories not be increased by more than $50,000,000.

2. Authority permitting Petro-Canada or its subsidiaries to enter into future commitments in the financial year 1981 of up to:

   (i) Two hundred million dollars ($200,000,000) for exploration; and

   (ii) Eight hundred million dollars ($800,000,000) for development and petroleum products.

From the
Privy Council Office

Petro-Canada Consolidated Capital Budget, 1981 – Schedule "A"

	($ Millions)	
Uses of funds		
Capital expenditures:		
(a) Exploration	417.9	
(b) Development and petroleum products	482.1	900.0
Interest expense and dividends on term preferred shares		105.1
Total uses		1,005.1
Sources of funds		
Internally generated funds (including incentive payments)		626.0
Debt retirement		(4.6)
Working capital		40.7
Preferred shares		343.0
Total sources		1,005.1

P.C. 1981-3673
18 December 1981
T.B. Rec. 780521

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the President of the Treasury Board and the Minister of Finance, is pleased hereby to approve, pursuant to subsection 7(5) of the *Petro-Canada Act* and subsection 70(2) of the *Financial Administration Act*, the Capital Budget of Petro-Canada and its subsidiaries for the financial year 1982, including:

1. Capital expenditures by Petro-Canada or its subsidiaries, which shall not exceed a total of $1,598,000,000 as set out in categories (a) and (b) of the summary of the Petro-Canada Capital Budget for 1982 attached hereto as Schedule "A," provided that Petro-Canada may reallocate funds among the said categories subject to the limit for total capital expenditures provided for in this item, and to the condition that each of the categories not be increased by more than $75,000,000.

2. Authority permitting Petro-Canada or its subsidiaries to enter into future commitments in the financial year 1982 of up to:

   (i) One billion dollars ($1,000,000,000) for Conventional Petroleum Exploration and Development; and

   (ii) Four billion, five hundred million dollars ($4,500,000,000) for Non-Conventional and Special Projects.

From the
Privy Council Office

Petro-Canada Consolidated Capital Budget, 1982 – Schedule "A"

	($ Millions)	
Uses of funds		
Capital expenditures:		
(a) Conventional petroleum exploration and development	1,001.5	
(b) Non-conventional and special projects	596.5	1,598.0
Interest expense and dividends on term preferred shares		165.0
Total uses		1,763.0
Sources of funds		
Internally generated funds (including incentive payments)		1,118.5
Debt retirement and share redemption		(68.9)
Working capital		(99.5)
Project debt		299.2
Equity capital		425.0
Additional financing		88.7
Total sources		1,763.0

P.C. 1982-4015
23 December 1982
T.B. Rec. 786018

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the Minister of Finance and the President of the Treasury Board, pursuant to subsection 70(2) of the *Financial Administration Act*, is pleased hereby to approve the Capital Budget of Petro-Canada and its subsidiaries for the financial year 1983, including:

1. Capital expenditures by Petro-Canada or its subsidiaries, which shall not exceed a total of $1,697,900,000 as set out in categories (a) and (b) of the summary of the Petro-Canada Capital Budget for 1983 attached hereto as Schedule "A," provided that Petro-Canada may reallocate funds among the said categories subject to the limit for total capital expenditures provided for in this item, and to the condition that each of the categories not be increased by more than $75,000,000.

2. Authority permitting Petro-Canada or its subsidiaries to enter into future commitments in the financial year 1983 of up to:

   (i) Nine hundred and fifty million dollars ($950,000,000) for Conventional Petroleum Exploration and Development; and

   (ii) Eight hundred and fifty million dollars ($850,000,000) for Non-Conventional and Special Projects.

From the
Privy Council Office

Petro-Canada Consolidated Capital Budget, 1983 – Schedule "A"

		($ Millions)
Uses of funds		
Capital expenditures		
(a) Conventional petroleum exploration and development	1,064.9	
(b) Non-conventional and special projects	476.0	
BP share purchase	157.0	
		1,697.9
Interest expense and dividends on term preferred shares		209.8
Total uses		1,907.7
Sources of funds		
Internally generated funds (including incentive payments)		1,271.4
Debt retirement and share redemption		(159.8)
Working capital (includes BP inventory replacement of $200 million)		(265.0)
Equity capital		367.5
Project debt		48.1
Direct financing		69.3
BP acquisition financing		389.6
Additional financing		186.6
Total sources		1,907.7

P.C. 1983-2556
10 August 1983
T.B. Rec. 789471

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources and with the approval of the Treasury Board, pursuant to subsection 7(2) of the *Petro-Canada Act*, is pleased hereby to direct that it be the policy of Petro-Canada to undertake the construction in its Montreal refinery of a 5,000 barrel per day upgrader facility to demonstrate the CANMET Hydrocracking Process.

From the
Privy Council Office

P.C. 1983-4060
22 December 1983
T.B. Rec. 791473

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, on the recommendation of the Minister of Energy, Mines and Resources, the Minister of Finance and the President of the Treasury Board, pursuant to subsection 7(5) of the *Petro-Canada Act* and subsection 70(2) of the *Financial Administration Act*, is pleased hereby to approve the annexed Capital Budget of Petro-Canada and its subsidiaries for the financial year 1984, including:

(a) Capital expenditures by Petro-Canada and its subsidiaries, which shall not exceed a total of $1,526,000,000 as set out in categories (a) and (b) of the summary of the Petro-Canada Capital Budget for 1984 attached hereto as Schedule "A," provided that Petro-Canada may reallocate funds among the said categories subject to the limit for total capital expenditures provided for in this item, and to the condition that each of the categories not be increased by more than $90,000,000; and

(b) Authority permitting Petro-Canada and its subsidiaries to enter into future commitments in the financial year 1984 of up to:

(i) Nine hundred and fifty million dollars ($950,000,000) for Petro-Canada Resources; and

(ii) Fifty million dollars ($50,000,000) for Petro-Canada Products and Corporate.

From the
Privy Council Office

Petro-Canada Consolidated Capital Budget, 1984 – Schedule "A"

	($ Millions)	
Uses of funds		
Capital expenditures		
(a) Petro-Canada resources	1,155	
(b) Petro-Canada products and corporate Capital expenditures	371	1,526
Interest expense and dividends on term preferred shares		146
Total uses		1,672
Sources of funds		
Internally generated funds (including incentive payments)		969
Debt retirement and share redemption		(139)
Working capital		27
Equity capital		425
External debt		390
Total sources		1,672

Notes

CHAPTER 1

1 See *The Financial Post 500* (1986), pp. 68-69.

2 It should be noted that, for the most part, these "adjustments" are related to Petro-Canada's status as a Crown corporation, and are not meant to indicate inappropriate or questionable reporting practices on the firm's part.

CHAPTER 2

1 Examples of such companies are Elf-Aquitaine, which at that time was owned by the French government, and a subsidiary of British Petroleum in which the British government held a minority ownership position.

2 *Oilweek* 37(18):10; and 37(20):12-13.

3 See Petro-Canada, *1985 Annual Report*, p. 47. This is likely an overestimate of the corporation's employees as of late 1986 since it does not fully incorporate the personnel reductions effected after the late-1985/early-1986 fall in world oil prices. Early-1987 reports estimate the number of employees at about 7,800, with an ultimate goal of 7,000, see *The Globe and Mail* (19 January 1987), p. B1.

4 See Canada, House of Commons, Standing Committee on National Resources and Public Works, 30th Parliament, 2nd session (19 April 1977), pp. 5-6; Dewar (1981), p. 22; and Best (1983).

5 Petro-Canada, *1984 Annual Report*, p. 2.

6 See Canada, Task Force on the Structure of Canadian Industry (1968).

7 See *The Globe and Mail* (9 March 1971), p. B10.

8 See Canada, House of Commons, 28th Parliament, 2nd session (2 March 1970), pp. 4252-53.

9 See ibid., 28th Parliament, 3rd session (18 February 1971), p. 3534.

10 See *The Financial Post* (29 August 1970,) pp. 1-2.

11 See ibid. (6 February 1971), p. 19.

12 For detailed descriptions of the corporate linkages between Cygnus, Home and Brown himself, see Canada, House of Commons, Standing Committee on Finance, Trade and Economic Affairs, 28th Parliament, 2nd session (2 June 1970), Appendices 3 and 4; Canada, House of Commons, 28th Parliament, 3rd session (18 February 1971), p. 3560 should also be consulted.

13 Ibid., p. 3534.

14 Compare, for example, Foster (1982*a*), pp. 59-60 with *The Financial Post* (6 February 1971), p. 19.

15 Canada, House of Commons, 28th Parliament, 3rd session (18 February 1971), p. 3557.

16 Ibid., p. 3560. The government official in question was Jack Austin, now a senator from British Columbia. His role in the negotiations about Home and later, in the formation of Petro-Canada, is discussed in Dewar (1981), especially pp. 16-20; and Foster (1982*a*), chap. 6.

17 See *The Financial Post* (6 March 1971), pp. 1 and 8.

18 Canada, House of Commons, 28th Parliament, 3rd session (11 March 1971), p. 4197.

19 Ibid. (23 March 1971), p. 4505.

20 Ibid.

21 Ibid. (22 April 1971), p. 5172.

22 We have been unable to obtain a copy of this document and have had to rely on the descriptions contained in secondary sources. See, in particular, Dewar (1981); Foster (1982*a*), pp. 61-63; Laxer (1983), pp. 50-52; and Pratt (1981), especially pp. 99-100.

23 This "tendency" is examined in Chapter 5 of this study.

24 This point is also made in Pratt (1981), p. 99.

25 Canada, Energy, Mines and Resources (1973*a*; 1973*b*).

26 Ibid. (1973*a*), pp. 185-91.

27 See, for example, Canada, House of Commons, 29th Parliament, 1st session (28 June 1973; 25 October 1973).

28 See ibid., (5 November 1973), especially p. 7543. Some Progressive-Conservative Members of Parliament publicly expressed guarded support for the notion of establishing a Canadian NPC, see, for example, Grafftey (1974). At the time this article was published, Heward Grafftey was the Tory MP for the Quebec riding of Brome-Missisquoi.

29 See Canada, House of Commons, 29th Parliament, 1st session (7 November 1973), p. 7621; (9 November 1973), pp. 7700-7701; (15 November 1973), p. 7819; (19 November 1973), p. 7908; and (9 January 1974), p. 9192.

30 Ashley and Smails (1965), p. 118. See also Canada, House of Commons, 21st Parliament, 7th session (7 May 1953), p. 4958.

31 Ashley and Smails (1965), pp. 116-17.

32 See Canada, House of Commons, 29th Parliament, 1st session (25 October 1973), p. 7222.

33 A document – Canada, Energy, Mines and Resources (1976) – concerning options for energy policy was subsequently released although it was never officially referred to as the "Phase 2" study. We will have more to say about this report later.

34 See Helliwell (1979), p. 188.

35 Ibid., pp. 175-76 and 199-202. See also the statement by Paul E. McRae in Canada, House of Commons, 29th Parliament, 1st session (6 December 1973), p. 8523.

36 See Canada, House of Commons, 29th Parliament, 1st session (25 October 1973), p. 7182.

37 See ibid. (6 December 1973), p. 8479.

38 Ibid.

39 These areas which are outside the boundaries of any of the provinces but within the territory of the realm of Canada are referred to as "Canada Lands" in publications issued by the federal government. The same convention has been adopted in this study.

40 Ibid., p. 8481.

41 Ibid.

42 Ibid., pp. 8481-82. If the ultimate goal behind the creation of an NPC is that oil self-sufficiency be reached earlier (and/or maintained longer) than in its absence, this condition is sufficient but not necessary. A necessary *and* sufficient condition is that the NPC provide a *net addition* to the industry's capacity to discover and develop crude oil reserves. We will not pursue this point any further.

43 It has been suggested that this would effectively reduce the cost of capital for firms involved in projects where Petro-Canada would also be a participant. See, for example, United States, Government Accounting Office (1981), chap. 4. We will come back to this issue in the next chapter.

44 The exception rests with the NPC's proposed role in transactions on the world oil market.

45 We do not necessarily agree with the argument but simply wish to note that it seemed to be the guiding principle of government policy in this area.

46 The concept of ministerial direction is not, of itself, a radical break from the past. See, for example, the discussion concerning Canadian Commercial Corporation in the previous section of this chapter and in Ashley and Smails (1965), pp. 116-17.

47 See Pratt (1982*b*), pp. 87 and 102; and Doern (1984), pp. 64-72.

48 The participants in the Polar Gas Project seek to build a pipeline to carry natural gas from the Canadian Arctic regions to Eastern Canadian and export markets. Petro-Canada holds a 25 per cent interest in this project, which at the end of 1986, had not reached the development stage.

49 Canada, House of Commons, 30th Parliament, 1st session (12 March 1975), p. 4037.

50 Ibid.

51 Canada, House of Commons, Standing Committee on National Resources and Public Works, 30th Parliament, 1st session (12 May 1975), p. 7.

52 Ibid.

53 Ibid. (24 April 1975), p. 9. See also ibid. (29 April 1975), pp. 22-23; and (12 May 1975), p. 7.

54 Ibid. (30 April 1975), p. 18. These remarks are attributed to J. L. Lebel, then Vice-President of Chevron Standard.

55 See Dewar (1981), p. 22.

56 "Farm-in" refers to an arrangement between two companies involved in exploration whereby the prospecting rights of one are assigned to the other in whole or in part. The company holding the exploration license (or permit) usually agrees to farm out its holding while the farm-in company takes on an obligation to do certain drilling work in return for a share of the profits from any related discovery.

57 See Canada, House of Commons, Standing Committee on National Resources and Public Works, 30th Parliament, 2nd session (19 April 1977), p. 10.

58 See Petro-Canada, *1976 Annual Report*, p. 25. It should be noted, however, that the Saskatchewan-based assets of ARCAN had previously been acquired by Saskatchewan Oil and Gas (Saskoil), a Saskatchewan Crown corporation. See *The Wall Street Journal* (11 March 1976), p. 3.

59 See Petro-Canada, *1976 Annual Report*, p. 17.

60 Canada, Energy, Mines and Resources (1976). "Self-reliance" had by then replaced "self-sufficiency" which, as noted above, had been used by the Prime Minister in his 6 December 1973 address to the House of Commons, as the chosen descriptor of the federal government's ultimate policy goal in this area (the time frame had also been extended from the end of the 1970s to 1990). An explanation of the differences between the two concepts can be found in ibid., pp. 123-24.

61 Ibid., p. 27.

62 See ibid.

63 See ibid., p. 134. This later evolved into the Petroleum Monitoring Agency.

64 Ibid., p. 146.

65 See ibid., pp. 5-6 and Petro-Canada, *1977 Annual Report*, p. 6.

66 The 1977 decline in Eastern offshore well completions is in part accounted for by Total Eastcan Exploration's decision to cancel its drilling program offshore from Labrador as a result of a federal-provincial jurisdictional dispute; see Plourde (1986), item 77.5. At that time, Petro-Canada was not involved in Total Eastcan Exploration's drilling program.

67 See Petro-Canada, *1982 Annual Report*, p. 10.

68 Ibid., *1976 Annual Report*, p. 4.

69 Canada, House of Commons, Standing Committee on National Resources and Public Works, 30th Parliament, 2nd session (19 April 1977), p. 25.

70 Ibid.

71 A more detailed description of these events can be found in Foster (1979), especially chap. 9.

72 The information in the last paragraph was drawn from *Oilweek* 29(18):6; 29(19):8; and 29(21):5.

73 See Foster (1978*b*).

74 See Canada, House of Commons, 30th Parliament, 3rd session (12 June 1978 to 30 June 1978).

75 We could identify only one instance when some of these issues were mentioned. See the remarks attributed to Harvie Andre, ibid. (20 June 1978), p. 6585.

76 See ibid., p. 6576*ff*.

77 See Petro-Canada, *1978 Annual Report*, p. 2.

78 See ibid., p. 26 and *1979 Annual Report*, p. 3.

79 This fact was confirmed in a number of interviews with federal officials.

80 See Canada, House of Commons, 30th Parliament, 4th session (13 November 1978), pp. 1041-47.

81 See Petro-Canada, *1978 Annual Report*, p. 9.

82 See Duncan (1978).

83 This was recently reaffirmed in Canada, Restrictive Trade Practices Commission (1986), p. 332.

84 See, for example, *The Winnipeg Free Press* (15 November 1978), p. 15.

85 Almost every major Canadian daily newspaper carried articles concerning the Pacific acquisition between 11 November and 15 November 1979. In addition, the interested reader should consult Foster (1978*c*; 1979), especially chap. 9 and pp. 158-64.

86 See Canada, House of Commons, 30th Parliament, 4th session (13 November 1978 to 24 November 1978).

87 See, for example, *The Globe and Mail* (8 June 1979), p. B13 as well as a series of articles on Petro-Canada which appeared in *The Calgary Herald* (19 April 1979), pp. 1-2; (20 April 1979), p. B13; and (21 April, 1979), p. C8. For an excellent discussion of the Clark government's handling of the Petro-Canada issue, see Simpson (1980), especially pp. 159-74.

88 See *The Globe and Mail* (16 June 1979), p. B16; (19 June 1979), p. B5; and Simpson (1980), pp. 165-166.

89 See Canada, Task Force on Petro-Canada (1979), especially pp. 10-12.

90 *The Globe and Mail* (8 September 1979), p. 1.

91 Ibid. (18 June 1979), p. B1.

92 See, for example, Zwarun (1980).

93 See, for example, Canada, House of Commons, Standing Committee on National Resources and Public Works, 31st

Parliament, 1st session (27 November 1979), pp. 39-40; and 32nd Parliament, 1st session (23 November 1982), pp. 13-14.

94 For an account of the developments during this period and of their perceived effects on Petro-Canada, see Petro-Canada, *1979 Annual Report*, pp. 1-2.

95 See Plourde (1986), item 80.3.

96 See *The Toronto Star* (20 March 1980), p. A16.

97 See Canada, Energy, Mines and Resources (1980), pp. 16-22 and 48-52. Even though Canada Development Corporation subsequently acquired 75 per cent of the assets of French-based Aquitaine Co. for about $1.2 billion (see Doern and Toner (1985), pp. 241-42 and 503), the new energy-related federal Crown corporations discussed in the NEP document were never established.

98 See, for example, Foster (1982*b*).

99 Canada, House of Commons, Standing Committee on National Resources and Public Works, 32nd Parliament, 1st session (23 November 1982), p. 55.

100 The Auditor General of Canada subsequently launched an investigation into certain aspects of this transaction.

101 The information contained in the last two paragraphs was mostly drawn from Petro-Canada, *1981 Annual Report*, pp. 34-39.

102 See the discussion in Canada, House of Commons, Standing Committee on Energy Legislation, 32nd Parliament, 1st session (20 April 1982), issue no. 1, Appendix ELLE-1, pp. 1A:9-1A:11.

103 Remarks attributed to Harvie Andre in ibid. (20 April 1982), issue no. 2, p. 10.

104 Ibid., p. 12.

105 Ibid., pp. 70-74.

106 Canada, House of Commons, Standing Committee on National Resources and Public Works, 32nd Parliament, 2nd session (14 February 1984), p. 31.

107 Ibid., p. 10.

108 See Foster (1981), pp. 56-57.

109 Canada, House of Commons, Standing Committee on National Resources and Public Works, 31st Parliament, 1st session (27 November 1979), p. 9.

110 See Table 2-1.

111 A more detailed description of this case can be found in Doern (1984), p. 66.

112 This paragraph is based on information contained in Petro-Canada, *1982 Annual Report*, pp. 29 and 33.

113 It should be noted, however, that a precedent for this kind of move, although on a much smaller scale, had been established with Petro-Canada's acquisition of Merit Oil, a small Canadian-owned chain of service stations located in British Columbia. See *The Vancouver Sun* (10 December 1980), p. H1. This was followed in 1982 by the acquisition of a 49 per cent interest in Harvey's Oil, a domestic fuel oil distributor based in St. John's. See Petro-Canada, *1982 Annual Report*, p. 22. For more details on the Merit acquisition and its perceived effects on the competitiveness of gasoline retailing in the relevant market areas, see Canada, Restrictive Trade Practices Commission (1986), pp. 332 and 336-37.

114 Canada, House of Commons, Standing Committee on National Resources and Public Works, 32nd Parliament, 1st session (23 November 1982), p. 11. For a similar description of the process which led to Petro-Canada's acquisition of BP Canada's downstream assets, see Best (1982).

115 In conversations with federal officials, we were told that in the early-1980s Petro-Canada had actively sought to develop some of the Western Canadian coal properties it had acquired as a result of earlier takeovers. However, prior to approving Petro-Canada's capital budget for the relevant years, the federal government eliminated all capital expenditures related to coal development.

116 This point is expanded upon in Chapter 5.

117 See, for example, Foster (1982*a*), chap. 25, as well as Doern and Toner (1985), pp. 36-38 and 46-56.

118 Although it was subsequently amended, the original intent of the federal government on these and related considerations can be found in Canada, Energy, Mines and Resources (1980), especially pp. 38-41.

119 See Canada, Energy Mines and Resources (1980), pp. 42-48. See also Canada (1981), pp. 2675-76.

120 For example, the retroactive provisions of the legislation became known as the "PetroCan back-in." Additional support comes from the fact that, as noted earlier, the new energy-related Crown corporations, and hence potential Petro-Canada competitors for the 25 per cent Crown interest in Canada Lands developments, discussed in the NEP document were never brought into being.

121 There is at least another documented instance when a Liberal federal government changed part of its energy

legislation to favour Petro-Canada. This occurred in 1977 when the Canadian Oil and Gas Land Regulations were amended to give preferential treatment to the Crown corporation; see Canada (1977*a*; 1977*b*). A description of the advantages to Petro-Canada can be found in Canada, House of Commons, 30th Parliament, 3rd session (20 June 1978), p. 6582. However, no indications were given that employees of Petro-Canada participated directly in the decision-making process which resulted in this policy change.

122 Although announced with the rest of the NEP measures in October 1980, the cash-grant system was not operational, for all intents and purposes, until the next calendar year.

123 It should be remembered that Petro-Canada was not in a fully taxable position prior to the introduction of the NEP, and hence could not take full advantage of the depletion and super depletion provisions contained in the corporation income tax.

124 More detailed information on the level and distribution of petroleum incentive payments are available in the *Annual Reports* of the federal Petroleum Incentive Administration.

125 See *Oilweek* 34(16):4, 20-21.

126 See Doern and Toner (1985), pp. 309-10.

127 Petro-Canada, *1983 Annual Report*, p. 5.

128 However, reports that Petro-Canada was considering the construction of an oilsands plant circulated early in 1985. See *The Globe and Mail* (8 April 1985), pp. 1-2.

129 See Plourde (1986), item 79.2.

130 Shortly after the deregulation of Canadian oil markets in 1985, this contract was further amended so that Mexican crude oil would only be imported if Canadian refiners wished to purchase it.

131 See Canada, House of Commons, Standing Committee on Energy Legislation, 32nd Parliament, 1st session (20 April 1982), issue no. 2, pp. 20-22.

132 See *Oilweek* 30(19):5.

133 Petro-Canada, *1984 Annual Report*, p. 2.

134 See Foster (1986), p. 20.

135 See, for example, Best (1985); and Foster (1986), pp. 20-22.

136 Table 2-1 shows cash considerations in 1985 of about $710 million for the Gulf Canada takeover. This excludes a subsequent expenditure of about $250 million for the acquisition of one of Gulf Canada's refineries located in Western Canada.

137 See Petro-Canada, *1985 Annual Report*, p. 8.

138 See ibid., *1984 Annual Report*, p. 46; and Petro-Canada (1986), p. 12.

139 See Plourde (1986), item 84.23.

140 Between 1984 and 1985, the slopes of "Total" and "Partner" are similar for both Eastern offshore and Northern well completions.

141 See Canada, Energy, Mines and Resources (1985).

142 See Petro-Canada, *1985 Annual Report*, pp. 37-38. In this calculation, "high-risk, long-lead-time" projects were defined to include "Canada frontier oil and gas properties," "process development costs," "oilsands properties" and "Polar Gas Project." See also the explanation offered by a senior Petro-Canada official in Canada, House of Commons, Standing Committee on Energy, Mines and Resources, 33rd Parliament, 1st session (9 June 1986), p. 24. Please note that the above is the new name assumed by the Standing Committee on National Resources and Public Works since March 1986.

143 See Canada, House of Commons, Standing Committee on National Resources and Public Works, 33rd Parliament, 1st session (11 November 1985), p. 4.

144 See, for example, Canada, House of Commons, Standing Committee on Energy, Mines and Resources, 33rd Parliament, 1st session (9 June 1986), p. 23; *The Financial Post* (7 September 1985), p. 10; (4 January 1986), p. 30; (7 June 1986), pp. 1 and 5; Foster (1986); also *The Globe and Mail* (14 December 1985), p. B9; (21 January 1986), p. B1; and (22 April 1986), p. B1.

145 Goodermote and Mancke (1983), p. 69.

146 We here abstract from the developments that occurred during the tenure of the minority Progressive-Conservative government in 1979-80.

147 See Trebilcock, et al. (1982), p. 79.

CHAPTER 3

1 The notion underlying the yardstick competitor is that its operating costs would provide a benchmark against which the operations of privately-owned firms could be assessed. Over time, this yardstick rationale for an NPC has evolved

to a "window-on-the-industry" objective, in which Petro-Canada is seen as providing expertise to the federal government based on information of the internal workings of the industry.

2 An analogous measure, which is used in this study, is the measured abnormal rate of return on the equity of the companies in the industry over the event period. The abnormal rate of return is defined as the actual rate of return minus the rate of return expected to prevail over the event period.

3 Tupper and Doern (1981) address the issue of which groups are the prime beneficiaries of the existence of particular Crown corporations. The answer remains ambiguous.

4 For example, the establishment of Petro-Canada could imply the entry of a new competitor in the industry, new information about the industry to the federal government or a signal that the federal government will undertake further taxation of the industry; each of these arguments could lower expected cash flows in the companies in the oil and gas industry

5 This position is consistent with that suggested by Pratt (1981).

6 See Laux and Molot (1981) for a discussion of the establishment of the Potash Corporation of Saskatchewan.

7 This idea is further developed in Pratt (1981), especially p. 106; and United States, Government Accounting Office (1981), chap. 4.

8 A similar point is made in ibid., pp. 26-30.

9 They include a measure of the risk of the particular security relative to a broadly based market portfolio. To make this example more concrete suppose the rate-of-return generating process is written as:

$$R_{it} = \hat{a}_i + \hat{b}_i R_{mt}$$

where $\hat{a}_i$ and $\hat{b}_i$ are the estimated regression coefficients obtained from data in the estimation period and R_{mt} is the rate of return on a market index. This equation represents what is called the market model. The benchmark return over a particular day (t^*) in the event period is $E(R_{it}^*, \hat{a}_i, \hat{b}_i, R_{mt}^*)$ where R_{mt}^* is the observed rate of return on the market index over day t^*.

10 A more detailed description of the method adopted can be found in Appendix B.

11 The empirical results were also computed using the full TSE index. They are virtually identical to the results using the adjusted TSE index, and hence are not reported here.

12 In many applications it is postulated that the risk premium (the difference between the rate of return and the corresponding risk-free rate) is the underlying distribution for which the mean and standard deviation are required. This is important if the events are separated over long spans of calendar time when interest rate changes were substantial. In our application, each event does not cover long time periods and thus the use of the risk premium is not necessary.

13 The definition of the "t"-statistic and a variant are provided in Appendix B.

14 A more detailed chronology compiled by Plourde (1986) lists 44 important events for 1973, 35 for 1974, and 21 for 1975.

15 The three events outlined below have already been discussed in detail in Chapter 2.

16 Since daily data on the indexes are available only subsequent to 1976, weekly data were used for events requiring data in 1976.

17 During April 1973, the Saskatchewan government established Saskatchewan Oil and Gas Company (Saskoil), with a broad mandate, see Plourde (1986), item 73.12. This could impact the industry and stock prices during the estimation period if it was interpreted as a signal of federal involvement and it was not anticipated prior to the date of establishment.

18 The period ends before the first reading of Bill C-8 in October 1974 and its ultimate passage in July 1975.

19 The results based on using the natural logarithm of the ratio of two adjacent weekly values of the appropriate index are almost identical and are not reported.

20 See the "t"-statistics reported in Table 3-2.

21 When the estimation-period standard deviation is used as the value for the event period, the resulting "t"-statistic remains statistically significant.

22 This result could have arisen because of the dissolution of Parliament, which occurred soon after the introduction of Bill C-32. As noted in Chapter 2, there was no causal relationship between the introduction of this Bill and the dissolution of Parliament.

23 The residual test results are unaffected if the oil and gas index were not removed from the TSE index or if values $\hat{a}_i = 0$, $\hat{b}_i = 1$ are substituted for the parameters obtained from the regression analysis.

24 However, see footnote 58 in Chapter 2.

25 See *The Wall Street Journal* (8 March 1976), p. 5.

26 See Wilbert Hopper's remarks in Canada, House of Commons, Standing Committee on National Resources and Public Works, 30th Parliament, 2nd session (19 April 1977), p. 10.

27 A more detailed discussion of these events can be found in Chapter 2.

28 See Jog and Riding (1984), Table 1, p. 4.

29 See *The Wall Street Journal* (12 June 1978), p. 34.

30 See ibid. (13 June 1978), p. 12.

31 See ibid. (29 June 1978), p. 5.

32 See Halpern (1983).

33 Due to the construction of the TSE index, the daily rate of return on this index includes only price appreciation and not dividends. This is consistent with the data available for the oil and gas producers and integrated oil companies indexes.

34 Since the estimated intercept over the estimation period was negative and statistically significant, this could lead to overstated residuals. Thus we also measured the residuals using the following estimates: $\hat{a} = 0$, $\hat{b} = 1$. The results did change as expected. Although there were six negative residuals, the cumulative value over the event period was 3.4 per cent, a reduction of 6 percentage points from the 9.4 per cent value using the estimation-period regression parameters.

35 This is reduced to 4.33 per cent when values of $\hat{a} = 0$, $\hat{b} = 1$ are used to obtain the benchmark rate of return.

36 This date coincides with a large abnormal return on Pacific Petroleum shares found in the Kryzanowski and Marzitelli (1986) study. See also *The Wall Street Journal* (27 September 1978), p. 16.

37 See ibid. (6 November 1978), p. 34; and (13 November 1978), p. 2.

38 See ibid. (12 September 1980), pp. 33 and 35.

39 See ibid. (18 November 1980), p. 15.

40 See ibid. (3 February 1981), p. 16.

41 The only study found on the impact of the NEP on stock market performance was done by Jog and Riding (1984). In their study they found ". . . investors in the oil and gas industry experienced a gain which averages 40 to 60 per cent and that this gain stemmed from the date of the NEP announcement." This result should be interpreted carefully since in their calculation of the oil and gas portfolio (index) they removed all companies which engaged in takeovers subsequent to the NEP announcement. This may have resulted in a bias in their results. In addition, the methodology used in the Jog and Riding study differs from that used in this report.

42 See Plourde (1986), item 80.29.

43 See *The Financial Times* (27 October 1982), p. 1*c*; and *The Wall Street Journal* (1 November 1982), p. 4.

44 See ibid. (26 April 1982), p. 47. This announcement did not refer exclusively to the downstream assets of BP Canada.

45 Since the estimation period had a significantly negative intercept for the integrated oils, the residuals were also calculated using $\hat{a} = 0$ and $\hat{b} = 1$ for integrated oils and oil and gas producers. The results do not change materially.

46 However, although not statistically significant, this acquisition did appear to lower returns to investors in the oil and gas industry.

CHAPTER 4

1 For the remaining part of this chapter, "industry" will refer to these four integrated oil companies.

2 We use the term "acquisition" in a generic sense to encompass both mergers and takeover bids.

3 Some studies have found negative but insignificant impacts on the stock price of acquiring firms. On this topic, see the discussion in Halpern (1983).

4 In the next chapter we examine the capital budgeting process from the point of view of accountability and control.

5 While 1985 data is also available, large extraordinary items for Petro-Canada in that year reduce comparability.

6 As noted in the previous section, "industry" refers to Texaco, Shell, Imperial Oil and Gulf. In the early years of the sample, Petro-Canada was not yet an integrated oil company and the comparison with the industry provides limited insight.

7 Chapter 2 provides an overview of the evolution of Petro-Canada including its acquisitions.

8 Dominion Securities Pitfield (1984), p. 34.

9 This definition of the return assumes that the non-interest (dividend) bearing preferred shares of Petro-Canada held

by the government of Canada are equivalent to common equity.

10 Since EBIT includes earnings before the payment of dividends on subsidiary preferred shares, the investment capital includes subsidiary preferred shares for this ratio.

11 As Chart 4-8 shows, the 1977 value of this ratio is 0.988 for the "industry" and 0.85 for Petro-Canada.

12 See Petro-Canada, *1983 Annual Report*, p. 33.

13 These were issued to finance the Petrofina Canada takeover, see Chapter 2.

14 The financial structure for 1981 becomes temporarily confusing with the acquisition of Petrofina Canada. As noted in Chapter 2, the financing consisted of a revolving term loan which was paid down by the issuance of convertible notes to the government of Canada; these notes are non-interest bearing and convertible into Petro-Canada common. As at year-end 1981, the term loan outstanding was approximately $462 million. The debt/equity ratio as calculated for 1981 excludes both the term loan and the convertible notes; if included this ratio would be 0.24.

15 The June 1984 issue of the *Journal of Banking and Finance* is devoted to Company and Country Risk Models.

16 In the calculation of the inputs to the "Z" score equation, subsidiary preferred shares are treated as equity. If they were considered as debt instead, the higher debt ratio results in "bankruptcy" classification in 1977, 1978 and 1980 while a marginal value is obtained in 1979.

17 $$\text{ROA} = \frac{\text{net income}}{\text{total assets}} = \frac{\text{net income}}{\text{revenue}} \times \frac{\text{revenue}}{\text{total assets}}$$

year-end total assets are used to calculate asset turnover.

18 We further assume that even if Petro-Canada had been faced with the adjustments we consider, its growth pattern would have been unaffected.

19 See Price Waterhouse (1983), p. 65.

20 As noted in Chapter 2, these were issued to finance the Pacific acquisition.

21 As Chapter 2 noted, these income debentures were issued to finance the ARCAN takeover.

22 Given the current tax-paying status of Petro-Canada, it is unlikely that it would choose to use a high proportion of debt in its capital structure.

CHAPTER 5

1 Consider the ultimate principals' control over their agent (the federal government). Voting for a political party clearly involves a very complicated problem – the voter's objective function is multivalued; there are a limited number of potential agents; the opportunity to discipline the agent only occurs every four years or so; the principal does not have access to all the information as to his agent's performance. For an excellent discussion of these problems, see Berkowitz and Kotowitz (1985).

2 Bell (1982), p. 120. At the time this was written Mr. Bell was Executive Vice-President of Petro-Canada.

3 This example is hypothetical only.

4 This would then cause "worse" financial performance as measured by some of the ratios used in Chapter 4.

5 Harris and Wiens (1980) have argued that this role of price setter is precisely the role that would be required of a Crown firm in the downstream oil industry, if one believed that the industry would otherwise be non-competitive. We disagree with the Harris and Wiens position for two reasons. First, if any industry is experiencing non-competitive outcomes, the *Competition Act* is available to deal with industry practices. Second, allowing the Crown corporation to act as the price setter means that the financial results of that corporation are impossible to assess – when are the firm's losses or poor profits the results of "pro-competitive" behaviour and when are they the result of inefficient management?

6 We asked Petro-Canada officials if they acted so as to decrease industry prices. They stated that their role was not to be a substitute for anti-combines policy and that the Minister of Energy, Mines and Resources agreed with this view. High-ranking Petro-Canada officials have similarly argued that it is not the corporation's policy to act as a leader in the markets for oil products. See Canada, House of Commons, *Standing Committee on National Resources and Public Works*, 32nd Parliament, 2nd session (14 February 1984), pp. 13-14.

7 See Borcherding et al. (1982), p. 145.

8 See Caves and Christensen (1980).

9 See Williamson (1975).

10 See Fama (1980).

11 Opposition parties, in theory, could play the role of information gatherer. This has not occurred. Remember the discussion in Chapter 2 of the minimal light thrown on key Petro-Canada's actions by opposition parties.

12 Borcherding et al. (1982), p. 136.

13 S.C. 1974-75-76, c.61

14 The fact that Petro-Canada has vague multiple objectives and that some of these objectives are difficult to evalute is no reason to argue that evaluation should not be attempted. Remember Bell's comments quoted earlier on.

15 See Canada, House of Commons, 29th Parliament, 1st session (6 December 1973), pp. 8479-83.

16 See ibid., 30th Parliament, 1st session (12 March 1975), pp. 4036-39.

17 See, for example, United States, Government Accounting Office (1981), especially Chapter 4; and Goodermote and Mancke (1983), especially pp. 75-76.

18 The industry is more "transparent" today, with increased information available publicly, greater use of futures markets etc.

19 For a survey of these issues, see Levinthal (1984).

20 See ibid., p. 51.

21 See Baiman and Demski (1980).

22 In addition, in worlds of incomplete information, differing objectives and risk aversion, perverse outcomes are possible.

23 Gravelle warns the reader that the solution is not to privatize public firms for the literature also suggests that private firms may be X-inefficient as well.

24 As noted in Chapter 2, Wilbert Hopper once suggested that objectives, performance and control were the three main sets of issues to be addressed for an NPC.

25 *Financial Administration Act* R.S., CF.10 as amended 1984 cc. 21, 31, 39, 40.

26 See Canada (1975), paragraph 7(5), p. 8.

27 Ibid., paragraph 7(2), p. 7.

28 See Canada, House of Commons, Standing Committee on Energy Legislation, 32nd Parliament, 1st session (20 April 1982), issue no. 1, p. 29. See also Appendix C.

29 As shown in Chapter 2, this time period saw Petro-Canada's unsuccessful bid for Husky and its acquisition of Pacific (and thus its expansion into downstream activities).

30 Canada, House of Commons, Standing Committee on National Resources and Public Works, 30th Parliament, 2nd session (19 April 1977), p. 17.

31 We gratefully acknowledge that these were made available to us by Petro-Canada officials.

32 Compare, for example, the capital budget for 1976 with that for 1984, P.C. 1976-1963 and P.C. 1983-4060 respectively, in Appendix C.

33 On this topic, see Trebilcock and Prichard (1983) who correctly point out the difficulties in having public firms competing with private firms provide much detail in advance of actions.

34 Refer to Appendix C.

35 All notes noted between brackets found in this subsection refer to sections of this new *Act* as given in the Office Consolidation, July 1985.

36 As of January 1987, all members of the Petro-Canada board are from the private sector. This has been the case since July 1986.

37 See Tupper and Doern (1981), pp. 38-39; and Gracey (1977), pp. 67-68.

38 Section 99 of the *Financial Administration Act* states that the board of directors of the Crown corporation should be consulted before the directive is issued [95(2)]; that these directors should ensure that the directives are implemented in a prompt and efficient manner and in so doing, (if they obey the general rules on directors) they are not accountable for the consequences arising from the directive [99(3)].

39 See Petro-Canada, *1981 Annual Report*, p. 18; and *1983 Annual Report*, p. 16.

40 See P.C. 1983-2556, reproduced in Appendix C.

41 This view is based on discussions with Petro-Canada officials.

42 The Committee does have access to the staff at the Parliamentary Library.

43 This has already been discussed in Chapter 2.

44 The Borcherding et al. (1982) analysis discussed earlier would suggest no inherent reason for Petro-Canada to be less efficient when competing with private-sector firms. Drilling for oil is not direct competition.

45 The theory of national resource extraction suggests some reasons for private-sector firms to have too high a discount rate. See Solow (1974).

46 Perhaps one would have to guard against the firm's use of its government ties to assist in joint ventures.

CHAPTER 6

1 Some movement in this direction has been noticed. See *Oilweek* 36(30):9.

2 The new *Financial Administration Act* subdivides Crown corporations into Schedule B and C companies; Schedule C having two parts. Before this Act, Crown corporations were divided into Schedule B, C and D companies. The new Schedule C, Part II corporations (including Petro-Canada) are those that operate on commercial ventures, and not dependent on operating subsidies. See Canada, President of the Treasury Board (1984).

3 In Chapter 2, we discussed some of the problems that could arise if the federal government maintained part ownership in Petro-Canada, problems which can be avoided by complete divestment.

APPENDIX B

1 The rates of return can be calculated over daily; weekly or monthly holding periods. In our applications, we use daily or weekly rates of return depending upon the interval reported for the integrated oils and oil and gas producers indexes.

2 A "t"-test can be constructed where the "t"-statistic is defined as:

$$\text{"}t\text{"} = \frac{(\text{average residual})_t}{\begin{matrix}(\text{standard deviation} \\ \text{of residual})_t\end{matrix}} = \frac{\bar{\hat{u}}_t}{S(\hat{u}_t)}$$

$$\text{where } S(\hat{u}_t) = [S^2(1 + \frac{1}{n} + \frac{(R_{mt}-R_m)^2}{(n-1)S^2(R_m)})]^{1/2}$$

and S^2 is the residual variance from market-model estimates during the estimation period; n is the number of observations used in the estimation period; R_m equals the average market rate of return over the estimation period; and $S^2(R_m)$represents the variance of the rate of return on the market index.

3 Although most event studies look at events which are spread over calendar time, the approach has been used to investigate the impact of a particular event that occurs one time only, for example, a particular anti-trust case.

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